AMERICAN GAS *Association* MONTHLY

MARCH 1948 • VOL. 30 · NO. 3

want a new range that's faster, cleaner... easier to cook with... fully automatic?

GAS has got it!

you'll do the fastest cleanest easiest cooking in your life on the new GAS range!

automatic controls... smokeless broiling...

easier, faster, cleaner cooking!

you get everything in the amazing new GAS ranges!

baking, broiling, top-of-stove... never was cooking so easy!

meet the cooking treat of the year!

It lights without matches! | Broils without pre-heating! | Automatic Clock-controlled!

if you're the one who does the cooking, look at the new time-saving step-saving work-saving

YOU GAS has got it!

NOW

see the superb new gas ranges that offe the greatest cooking advances of the age!

YOUR BEST BUY IS A

AUTOMATIC GAS RANGE

SHOWN are some of the hand-lettered Gas Has Got It headings which appear first in full-page and half-page advertisements together with large-scale illustrations of automatic gas ranges built to "CP" standards. Magazines in which this advertising runs have a nation-wide circulation during the first quarter of 1948 in excess of 75 million. These national messages are brought down to the local level by facsimiles or adaptations of the advertisements placed in newspapers by gas companies, manufacturers and dealers. Thus nationally and locally, the gas industry presents the same story to the public through identical advertisements.

new automatic gas

for faster, fine fully automat cooking...choos

new GA

New Coolness! New Cleanliness

plus every new invention to make cooking

easy

HEARINGS on the appeal of the gas industry and other power utilities for badly-needed mobile radio channels have been postponed temporarily by the independent action of a group whose interests have by-passed the Federal Communications Commission—the government body set up in 1934 to allocate radio channels to all non-government users—and have had a special resolution introduced in Congress which would assign to that group at least a portion of the channels now available. . . . Meanwhile, the gas industry is proceeding with plans for an orderly hearing before the F.C.C. and is coordinating with the electric, water, and steam industries, voluminous case history evidence that the power utilities should be granted additional mobile radio channels in the interest of public safety. . . . The important role which the gas industry's Mobile Radio Committee is playing in the struggle for unimpaired use of radio is outlined in this issue of the MONTHLY. . . . The A. G. A. Gas Production Research Committee's work on catalytic reforming of hydrocarbons is another subject currently of major interest to gas company executives. An account of the first commercial catalytic reforming units in full utility service is another feature in this issue—an added proof that the industry's extensive research program is paying dividends.

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Industry Seeks Clear Mobile Radio

ARMED with the knowledge that uninterrupted gas service is essential to the interest and safety of the American public, the gas industry is entering the final round of its battle to guard that service with the most reliable emergency tool in the communications field—unimpaired use of mobile radio.

Results of an industry-wide survey urging in the interest of public safety that service by the "power utilities" (gas, electric, water, and steam) be separated from "other industries" (trucking companies, dairy companies, manufacturing concerns, etc.) have been compiled by the American Gas Association's Mobile Radio Committee, under the inspired leadership of its chairman, Edward M. Borger, president, The Peoples Natural Gas Co., Pittsburgh, and are ready for presentation before the Federal Communications Commission sometime in March or soon thereafter.

Leading the gas industry's drive to obtain unimpaired mobile radio channels are Edward M. Borger (left), president, The Peoples Natural Gas Co., Pittsburgh, and Warren T. Bulla, Natural Gas Pipeline Co. of America, Chicago, Illinois

Already a number of complicated hearings have been held on the mobile radio situation. The basic facts in the case, however, are simple.

Since 1934, the F.C.C. has had jurisdiction over the allocation of all radio channels to non-government users. In that portion of the radio spectrum (the whole range of radio frequencies) which is most useful for communication to trucks and cars, approximately 50 percent of the spectrum is retained by the government with the remaining 50 percent falling under F.C.C. jurisdiction.

Growing demand for radio communication involves a serious problem. As power utility radio service alone has grown from 50 to more than 400 users and from 800 to more than 10,000 stations in three and a half years, the F.C.C. in 1942 suggested the establishment of an advisory group representing industries whose interest in radio is vital to the public. This group was set up as an engineering committee to work jointly with the commission's staff and is known as the Radio Technical Planning Board.

The board is comprised of a steering committee and 13 panels each of which is composed of committees representing specific radio services. Mobile and emergency service communications come under panel 13 which consists of the following nine committees:

1. Police
2. Fire
3. Forestry and Conservation
4. Power utilities
5. Transit utilities
6. Highway systems
7. Railroads
8. Engineering
9. Petroleum and Oil industry

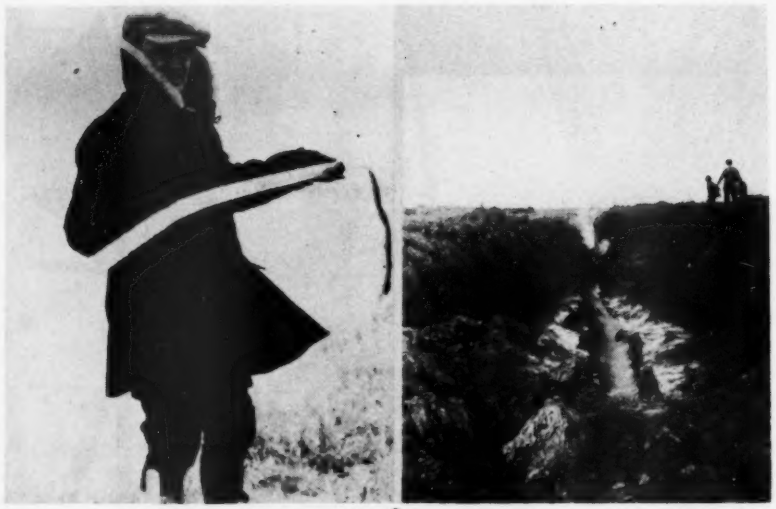
It can be seen, therefore, that the gas, electric, water, and steam industries are represented through Panel 13, Committee 4.

Warren T. Bulla, Natural Gas Pipeline Co. of America, Chicago, Ill., as the Association's hard-working representative on the Radio Technical Planning Board, cooperates closely with Committee 4. R. V. Dondanville, Commonmonwealth Edison Co., Chicago, is chairman of this committee; E. D. Glatzel, Detroit Edison Co., is vice-chairman, and Howard Davis, Jr., Philadelphia Electric Co., is secretary.

Members of the A. G. A. Mobile Radio Committee who are helping Mr. Borger and Mr. Bulla to present the gas industry's case for unimpaired use of mobile radio are as follows:

Charles S. Coates, general superintendent, Tennessee Gas Transmission Co., Houston, Texas; H. H. Cuthrell, vice-president, The Brooklyn Union Gas Co., and also A. G. A. vice-president; F. A. Hough, vice-president, Southern Counties Gas Co., Los Angeles, Calif.; O. W. Morton, vice-president and superintendent of transmission operations, Panhandle Eastern Pipe Line Co., Kansas City, Mo.; M. Kingsley

◆ Natural gas drilling crew at work in Texas. Picture by Elmer C. Beckwith, The Peoples Gas Light & Coke Co., Chicago



Crippling sleet storm in Texas (upper left), natural gas pipeline blow-out (upper right), and wash-out of pipeline across creek in Nebraska exemplify many scores of emergencies in which mobile radio has helped materially to speed the restoration of gas company service

Patterson, vice-president, Minneapolis Gas Light Co., and Thomas F. Smith, vice-president in charge of distribution and utilization, Boston Consolidated Gas Company.

Robert W. Hendee, president, Colorado Interstate Gas Co., Colorado Springs, Colo., and A. G. A. first vice-president, is an ex-officio member of the Association's Mobile Radio Committee.

Major facts in the industry's fight against impaired use of mobile radio have been summed up by the committee as follows:

"Gas service is essential in the lives of more than one-half of the U. S. population; interruption in this service constitutes a danger to life and property; the gas industry has taken and is taking advantage of every facility to make operations safer and more dependable.

"Communication is vital to proper operations," the statement continues; "all existing forms of communication are presently being used; two-way mobile radio is the fastest, most dependable and best adapted means of communication to insure prevention of emergencies, to effect speedy repairs, to safeguard the public and to conduct gas utility operations."

Mobile radio equipment in cars and trucks has proved its speed and effectiveness on hundreds of occasions, cutting to a minimum the loss of life, property and invaluable time under every conceivable type of disaster situation.

Southern Counties Gas Company and Southern California Gas Company are two of the many companies which have learned the value of mobile radio through a series of emergencies.

In January 1943 heavy rains threatened to wash out a major pipeline river crossing in Ventura County, California. During this rain, telephone communications with the Ventura County division office of the gas company were out of service and messages from the gas dispatcher had to be relayed through two fixed stations to a 50-watt and a 15-watt mobile unit operating in the affected county.

Information concerning conditions at the river bank was quickly transmitted to the gas dispatcher in the general office and he could, therefore, take the necessary precautions to avoid a gas outage.

An even more graphic incident occurred December 18, 1945, when a Navy truck loaded with depth charges, bombs, etc., exploded on the highway near San Diego. The explosion took place directly over Southern Counties Gas Company's 12-inch transmission pipeline which was the only source of supply for the city of San Diego and caused a complete break in the line.

Fortunately, the pipeline division superintendent was promptly reached by mobile radio and he quickly sized up the situation and called by radio for repair crews and equipment.

Through promptness in handling the situation, repairs were made in only a few hours. By the time the line was restored to operation, only a small amount of gas remained in the San Diego Gas & Electric Company's holders. The use of mobile radio equipment in this case probably prevented a partial or complete outage in San Diego—a city with 100,000 meters at that time.

Prior to the installation of a radio system, Washington Gas Light Co., Washington, D. C., experienced severe damage from an unusually heavy snowstorm which swept over the Capital City March 29, 1942, disrupting utility services in general. At that time Washington was served with a 600 B.t.u. mixture of manufactured and natural gas, the latter being received from the main transmission line of the supplier at a meter and regulating station in Rockville, Md., about 20 miles northeast of Washington.

Excessive Pressure

After the load period that day, the utility attempted to decrease the incoming natural gas pressure at Rockville but were unable to communicate with the regulating station since telephone facilities had failed.

As a result excessive pressures were built up in the company's 12-inch natural gas transmission line in Washington until a dead end blew out near one of the plants. Considerable damage was done to the line which was out of service for over six hours and it was necessary to immediately start manufacture of 600 B.t.u. carburetted water gas. Subsequent incidents caused by this transmission line failure and the heavy snow finally caused extensive damage to the

main 4,500 M.m.c.f. storage holder at the company's East Station which necessitated its removal from service for major repairs for a period of almost three months.

Subsequently the utility reported: "The rupture of this transmission line and consequent gas holder damage could have been averted if our radio system were in operation at that time."

Blow-outs, severe snow and sleet storms, wash-outs due to floods, these are but a few of the many disasters in which mobile radio is needed. Accompanying this article are illustrations of three case histories in which mobile radio played a prominent part.

Panhandle Eastern Pipe Line Co., Kansas City, Mo., have reported another interesting use of mobile radio as follows:

"During the telephone strike of 1947, our radio was the only means available for operating and maintaining our pipeline system east of Kansas City, Missouri.

"On one occasion when a break occurred on our system in Indiana, we are satisfied that the radio enabled us to repair this break and restore service in approximately 50 percent of the time that would have been required if our maintenance trucks and supervisors' cars were not equiped with radio."

One of the most spectacular examples of increased use of mobile radio is Columbia gas system's plan to establish a short-wave radio network in five states at a cost of approximately $200,000.

The system's major use of radio communication will be to link the offices of field superintendents and their scattered work crews in times of emergencies and also to improve the dispatching, control and operation activities related to more than 10,000 miles of natural gas production and transmission lines operated by the affiliated companies.

In the manufactured gas industry, The Brooklyn Union Gas Company installed last spring a two-way short-wave radio system including cars, special service trucks and specially trained personnel. The radios have proved a great time-saver in the dispatch and control of service crews and have enabled the sending of service personnel only a few minutes after word of an emergency is received from a customer, the fire or police departments.

With the number of mobile radio channels definitely limited and the demand for channels ever increasing from all sides, it is obvious that the F.C.C. was faced with a difficult problem of selection.

The threat to power utility service arising from the crowding of channels has been greatly accentuated, however, by an F.C.C. decision in March 1947 specifying that the "power utility" channels would have to be shared not only by gas, electric, water, and steam utilities and petroleum industry, but also by "other industries requiring similar radio service."

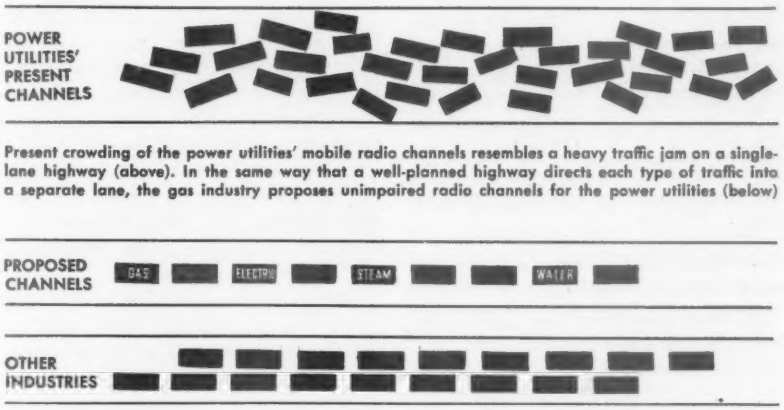
Committee 4 has requested 53 *exclusive* "emergency service" channels but received instead 31 channels to be shared as outlined above. Of this number only 17 channels are actually usable due to geographical crowding which makes only the alternate channels effective.

Also as the result of the representations of Committee 4, the rules governing the operation of radio in gas and electric systems have been modified to obtain full advantages of its benefits to the public. Part 17 of the F.C.C.'s rules has been rewritten to establish a new "Utility Radio Service" which is defined as "radio communication service used in connection with and concerning the operation of certain public utilities."

Radio under this definition may be used in connection with all essential operations and is not confined to emergency use. "Petroleum Pipe Line Operators" and "Transit Utilities" also operate as "Utility Radio Services" but "Transit Utilities" have separate frequencies assigned to them.

The desperate need for additional channels for the power utilities is attested by a tremendous increase in the number of mobile radio applications during the past three and a half years. This sixfold growth occurred during a period of equipment shortages and uncertain frequency allocation conditions. Even more rapid growth can be expected.

From June-September 1947 the F.C.C. received applications covering 196 land station transmitters and 2,622 mobile units to operate on frequencies allocated to power utilities, petroleum and other industries. Committee 4 had predicted this rapid growth and in its studies indicated that 53 *exclusive* channels was the minimum needed to fill the requirements of the power utilities.



Present crowding of the power utilities' mobile radio channels resembles a heavy traffic jam on a single-lane highway (above). In the same way that a well-planned highway directs each type of traffic into a separate lane, the gas industry proposes unimpaired radio channels for the power utilities (below)

With only 17 of the 31 allotted channels usable effectively there were as of August 1, 1947, 115 power utility licensees in the area comprising roughly Western Pennsylvania, West Virginia, Ohio, Kentucky, Indiana, Illinois, Michigan and Wisconsin. Only about 28 percent of all the licensees in the power utility service are located in this area.

Of these 115 licensees, 95 require allocations in the same frequency range (eliminating all water, industrial and municipal licensees under consideration in this range). It is not possible to move any appreciable number of these 95 licensees out of that range because of the extent of the systems installed and the nature of the terrain involved. The power utilities are faced in that region with the basic problem of fitting 95 licensees into eight available channels.

The F.C.C. has recognized the plight of the power utilities to the limited ex-

tent that in 1945 it reserved a small block of frequencies between television channels 4 and 5 for the mobile services. However it was later found that these arrangements were unsatisfactory because of the interference to television reception.

In August 1947, the Commission proposed three modifications, subject to further hearing, which would in effect give the power utilities 12 exclusive channels and sharing privileges with "petroleum" and "other industries" on 14 other channels in that band. This allocation has been strongly attacked by other mobile services in subsequent hearings and a final decision is still pending.

The obvious conclusion is that the power utility radio service will continue to experience overcrowding and may shortly be reduced to uselessness in serving all-important public safety. Already serious interference is being experienced by many users in the North Central area.

In order to solve the present traffic tangle the A. G. A. Mobile Radio Committee has solicited from companies using mobile radio the following information:

1. When did you begin using mobile radio service?

2. How many fixed and mobile stations do you have?

Type of mobile radio which gas companies throughout the country install in trucks and cars

3. What is the compass of your operations?

4. Number of gas customers.

Case histories of the use of mobile radio equipment where life and property were saved have been collected. Photographs and all manner of graphic descriptions have been received and prepared for presentation before the F.C.C. Until the crisis is settled the power utilities will continue to be classified in the same category with "other industries"—trucking companies, dairy companies, manufacturing concerns, etc.

The plain facts are that neither the service rendered by the power utilities nor the plant required in its rendition are "industrial" in character. First, the service is delivered instantly on the spot and around the clock. Second, the public highways are occupied by permanent installations to accomplish this.

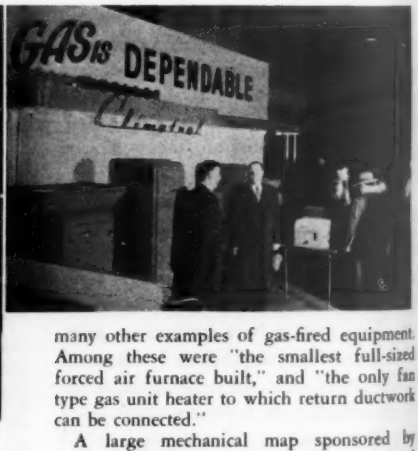
Both the nature of power utility emergencies and the type and location of the plant usually involved are such that radio is a necessary and competent—in fact the most competent—means of protecting public safety and improving the continuity and rehabilitation of that service.

Power utility service is a definite form of "public necessity" which is paramount to "public convenience."

Faced with a difficult task, the F.C.C. has repeatedly recognized but never completely met the essential needs of the power utilities. Until the paramount need is met for radio communication by these utilities—along with police, fire, and other services in the interest of public safety—the overcrowding in mobile radio will continue.

Gas companies throughout the country have gathered impressive evidence that unimpaired mobile radio service is essential to public safety. The case is pending. The gas industry, together with the other power utilities, eagerly await their opportunity to testify on the importance to them of mobile radio. The decision when it comes could conceivably affect the entire American public.

Large Gas Exhibit at International Heating Show



A 4,700 square foot gas appliance display sponsored by the American Gas Association occupied one of the most advantageous positions on the main floor of Grand Central Palace, New York, during the eighth International Heating & Ventilating Exposition, February 2-6.

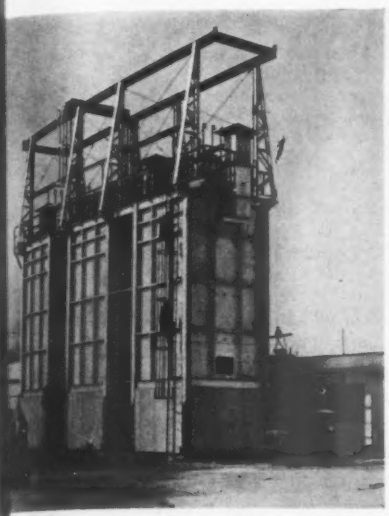
Individual booths of 16 cooperating manufacturers in the gas exhibit contained a wide variety of gas appliances including domestic gas water heaters in both cabinet and closet or utility room designs.

Scattered throughout the exposition were many other examples of gas-fired equipment. Among these were "the smallest full-sized forced air furnace built," and "the only fan type gas unit heater to which return ductwork can be connected."

A large mechanical map sponsored by A. G. A. (see center picture above) pointed out expansion and construction areas for both the natural gas and the manufactured gas industries.

New Type Gas Production Plant Now in Operation

Catalytic reforming process in commercial gas utility use for first time following several years of extensive research by A. G. A.



View of catalytic reforming furnaces at Long Island Lighting Company's Riverhead plant

THE first catalytic reforming plant to attain full commercial operation for a utility company has begun delivering gas to the distribution mains of the Long Island Lighting Co., Mineola, N. Y.

An engineering development of Surface Combustion Corp., Toledo, O., the plant uses a catalytic reforming process which for a number of years has been under investigation by the Gas Production Research Committee, American Gas Association, as one important solution to the peak load problems of the gas industry.

An initial research report of work completed on this subject at the Institute of Gas Technology, Chicago, was published in the April 1946 issue of the A. G. A. MONTHLY under the title "Catalytic Gasification of Higher Hydrocarbons," and this was followed in November 1946 by the installation of a pilot plant at the Philadelphia Electric Company's Chester, Pa. works, where a continuing study is under way in connection with A. G. A. Project, CPR-1C. This pilot plant was purchased by the A. G. A. Gas Production Research Committee and comprises a Surface Combustion furnace atmosphere generator and catalyst.

First report of results of the pilot plant study appeared in the February 1948 MONTHLY on page 17. A. G. A. research on this work is continuing along the following lines: development of additional catalysts; use of liquid hydrocarbons, and gasification at medium pressures. Additional reports will be made as various stages of the project are completed.

This process represents a new approach to gas industry problems, not only in the type of gas produced, but also from the standpoint of flexibility and other economic factors. Now small compact catalytic gas reforming plants can be installed at strategic point along the systems of manufactured or natural gas systems to produce and feed into the system gas of the same B.t.u. value and gravity as that produced by other plants of the system.

The Long Island plant uses heat-resisting alloy tubes filled with a refractory supported catalyst and connected to a system which feeds an automatically proportioned mixture of hydrocarbon vapor, steam and air. Rising through the catalyst bed, this mixture disassociates the vapor into mainly hydrogen and carbon monoxide to form first a blue gas of definite and controlled composition, which at Long Island is gas of 240 B.t.u. and 0.54 gravity.

The hot gas issuing from the top of the reforming tube is then cooled in primary coolers and a washer cooler after which it is automatically cold enriched by the further addition of hydrocarbon vapor to a definite and controlled composition. This cold-enriched gas for the plant is held at 540 B.t.u. and .67 gravity which are the exact characteristics of the gas manufactured by Long Island Lighting Company at its plants 60 or 70 miles from the catalytic gas reforming plant. Appliances on the entire system can use gas from either the Riverhead catalytic plant or the other straight manufactured gas plants system and obtain the same efficiency and results.

Consumers Gas Co., Reading, Pa., and The Harrisburg Gas Co., Harrisburg, will probably have the second and third plants of this type for commercial production. Rated capacity of the Harrisburg plant will be five million cubic feet a day. The new plant will make gas similar to water gas though lighter in gravity. It will mix well and in practically unlimited amounts with the coke oven gas supplied by Bethlehem Steel Company.

The Harrisburg company reports that a variety of fuels may be used in the process, depending on prices and availability. These include propane, butane, gasoline, and natural gas if it is available. Primarily designed for winter operation, the plant will provide the extra gas needed to take care of heating in ordinary winter weather.

In addition to the "cracking" unit, The Harrisburg layout will include a boiler plant, a 420,000-gallon spherical tank for storing gasoline, six additional 30,000-gallon tanks for storing propane or butane, and necessary piping, controls, wiring, and auxiliary equipment. Based on preliminary estimates, total cost of this plant is expected to be about $1,250,000.

Survival

● Startling public beliefs about government and private employment were reported by *Business Week* Magazine—the February 7 issue:

In the U. S., more people would prefer to work for the government than for private industry. The figures: 41 percent compared to 40 percent. Others have no opinion.

Interestingly, the situation is reversed in Britain. There, 45 percent favor private employers, 37 percent the government and 18 percent don't know.

These figures were compiled and published by the American and British Institutes of Public Opinion. In commenting, *Business Week* says:

". . . the returns clearly mean that private enterprise has a major job in changing employment preferences if survival over the long pull is to be assured."

A.N.A. News Bulletin

Elizabeth J. Lynahan, workshop chairman, and Jessie McQueen, A. G. A.

A.G.A. Workshop Shows New Ways To Serve

Demonstrations, discussion, a refresher in home service organization and techiques provide incentives for future progress

A VIVID picture of the numerous activities undertaken by gas company home service departments was presented before some 250 persons from 32 states who attended the American Gas Association's annual home service workshop in Chicago, January 21-24. Elizabeth J. Lynahan, home service director, The Peoples Gas Light & Coke Co., Chicago, and chairman, A. G. A. Home Service Committee, presided.

Among the wide range of subjects featured on the program were food and equipment demonstrations, and discussions of research, servicing, and installation of gas equipment. A refresher in home service organization and methods was supplemented with news and developments of new products presented by speakers from outside the gas industry.

Techniques and program ideas illustrating the "how to go about it" phase of home service activities, were presented in a group of skits and demonstrations. "Mrs. Muffet Takes the Cake," a skit by Harriette Lundberg and Jewel Bartter, Michigan Consolidated Gas Co., developed the conclusion that the ultimate in good food preparation is possible for the homemaker who works in a well-arranged kitchen with modern automatic gas appliances.

The program which The East Ohio Gas Company gives in the Cleveland schools, upon invitation, was demonstrated in part by Melva Haskins and Dorothy Dean. This is the same program which was called extremely effective by Dorothy Ellen Jones, supervisor of home economics, Cleveland Public Schools, during the A. G. A. annual convention last fall. The skit given at the workshop was well-acted and amusing, making it easy to understand why the gas company's program has been so well accepted by the school system.

One basic function of the workshop is the training of inexperienced personnel

Home Service Committee chairmen: (left to right) Gladys Price, Southern California Gas Co., 1939; Mrs. Mary Belle Burnett, The Cincinnati Gas & Electric Co., 1947; Ruth B. Soule, The Brooklyn Union Gas Co., 1930; Elizabeth Sweeney "McCall's," 1937, then New York State Electric & Gas Corp.; Dorothy E. Shank, "What's New In Home Economics," 1934, then American Stove Co.; Ada Bessie Swann, "Woman's Home Companion," 1925, then Public Service Electric & Gas Co.; Jessie McQueen, A. G. A., committee secretary; Mildred R. Clark, Oklahoma Natural Gas Co., 1938; Beatrice Cole Wagner, The Philadelphia Gas Works Co., 1936; Elizabeth J. Lynahan, The Peoples Gas Light & Coke Co., 1948. Jeannette Campbell, General Mills, Inc., 1943, then Minneapolis Gas Light Co., was also present

Texas delegation at the workshop: (left to right) Patricia Ney, City Public Service Board, San Antonio; Mrs. Winnell Simmons, Houston Natural Gas Corporation, Houston; J. O. Jackson, United Gas Corporation, also Houston; Nell Read, City Public Service Board, San Antonio; Julia Hunter, Lone Star Gas Co., Dallas, and Mrs. Clara Irby, United Gas Corporation

College instructors in household equipment: (seated, left to right) Mrs. Elaine Knowles Weaver, Ohio State University; Mrs. Louise J. Peet, Iowa State College; Daisy Davis, Ohio State; (standing) Vivian Marshall, New Orleans Public Service Inc.; Helen Kirtland and Mary Huck, The Ohio Fuel Gas Co., and Mrs. Joan Hodgdon, A. G. A. Testing Laboratories

Harry Swenson, director, kitchen planning bureau, The Peoples Gas Light & Coke Co., illustrates component factors of "Color in the Kitchen"

in home service work. A presentation on this subject outlined the plan used by The Peoples Gas Light & Coke Co., which uses an inexperienced home service director part-time for public demonstrations, as a supplement to the program given by a director with experience.

Nellie Fredeen played the part of the experienced director assisted by Marjorie Lawton, in a dramatically-timed sales-slanted demonstration. The features of a new model gas range were used as the basis of presentation.

"How to Build a Radio Program" was the subject introduced by Mrs. Margaret Schrock, The Ohio Fuel Gas Company. The speaker illustrated her points with a recording of one of the radio programs carried through the wide area served by this company.

The Servel Homemakers' Institute, under the direction of Clara Ridder, gave a skit in five scenes with the title "Home Service Promotes the Gas Refrigerator." A character, "Tiny Flame," dressed in blue, announced the sequences—a home call, a talk for schools, a radio program, the preparation of newspaper copy, and a club demonstration.

Other participants in the skit, which was packed with information and dramatic ideas were: Martha Carnes, Laverne Heady, and Lucille Peterson. Rovilla Reynolds played "Tiny Flame."

"Gas Fuel and Its Utilization" was the subject prepared by Edwin L. Hall, director, A. G. A. Testing Laboratories, and in his absence delivered by C. A. Thorp, chief research engineer. The widespread distribution and use of gas as a fuel and the research which has increased its availability and use were among the factors brought out in this paper. It was preceded on the program by the showing of the motion picture film "Gas" through the courtesy of The Tennessee Gas Transmission Co., Houston, Texas.

An informative paper entitled "Fundamentals of the Automatic Gas Water Heater" was presented by two representatives of the Ruud Manufacturing Co., Pittsburgh, Pa., and is printed on page 19 of this issue of the MONTHLY. H. B. Kivlan read the paper while R. M. North used charts to "build" an automatic gas water heater. Portland Gas and Coke Company's popular film "Hot Water Helps" was shown as part of the discussion on this subject. Prepared for home service use the film employs cartoons, sketches and photographs to tell the story of the automatic gas water heater.

"The Junior Miss in Hot Water" was the subject of the home service discussion on water heating promotion by Lyna Meeker, The Ohio Fuel Gas Co., Toledo, Ohio. Using cardboard figures, Miss Meeker gave a typical school presentation to accent the good grooming possibilities in correct hot water usage.

Crammed with ideas for color combinations and presented in his well-known authoritative fashion, was the

Melva Haskins and Dorothy Dean, The East Ohio Gas Co., in a skit entitled "Our School Program"

Home economists Mrs. Beth Bailey McLean, Swift & Co., and Esther Latzke, Armour & Co., who spoke on the subject "What's New in Meat Cookery"

Representatives from many places: (left to right) Inez Somers, The Consumer's Gas Co. of Toronto, Toronto, Canada; Katherine Rathbone, Southern Counties Gas Co., Los Angeles; Mrs. Mary Dorn, Tampa Gas Co., Tampa, Fla.; Gladys Price, Southern California Gas Co., Los Angeles; Mrs. Loretta Johnson, Tide Water Power Co., Wilmington, N. C.; Mary Driscoll, The Boston Consolidated Gas Co.; Margot Whitmire, Springfield Gas Light Company

"The new look": (l. to r.) Mary Louise Kraft, Central Indiana Gas Co., Muncie; Fay Rudolph, Southern Indiana Gas & Electric Co., Evansville; Jane Schleicher, The East Ohio Gas Co., Cleveland; Mrs. Helen Mandigo, The Gas Service Co., Kansas City, Mo.; Mrs. Eleanor Wiese, Public Service Electric & Gas Co., Newark, N. J.; Violet Radmanovich, Northern Indiana Public Service Co., South Bend; Lucille Boettcher, The Laclede Gas Light Co., St. Louis

special kitchen planning presentation of the workshop given by Harry Swenson, The Peoples Gas Light & Coke Company. Mr. Swenson combined design, fabrics, accessories, and style items into chart and object displays. Each of these proved his statement: "You cannot afford to neglect color, style and decoration in a kitchen. More kitchens suffer from anemia than high blood pressure."

A tour of the many attractive kitchens of The Peoples Gas Light and Coke Company was made possible during one of the sessions of the workshop. Mr. Swenson and members of his staff described the workings of the kitchen planning centers, after which the tour was conducted in small groups, each under the guidance of a staff member.

Accounts of activities from eight utility companies composed a two-part symposium, and the value of these short reports was brought out by many home service women who had come to the workshop for "new ideas." Subjects discussed were "Employee Classes," "Recipe Formation," "Building a Home Service Library," "Home Service in a Dealer Cooperative Program," "A Changeover to Home Service," "Sales Floor Activities," "Theater Cooperation," and "Teacher Dinners."

Participating in these reports were Katherine Rathbone, Southern Counties Gas Co., Los Angeles, Calif.; Beatrice Cole Wagner, The Philadelphia Gas Works Co., Philadelphia, Pa.; Mrs. Winnell Simmons, Houston Natural Gas Corp., Houston, Texas.; Gertrude Drinker, Department of Public Utilities, Richmond, Va.; Rebecca Sullivan, The Gas Service Co., Kansas City, Mo.; Mrs. Mary Dorn, The Tampa Gas Co., Tampa, Fla.; Julia Hunter, Lone Star Gas Co., Dallas, Texas, and Flora Dowler, The Manufacturers Light and Heat Co., Pittsburgh.

Luncheon table guests: James F. Oates, Jr., chairman of board, The Peoples Gas Light & Coke Co., Chicago; Helen Kirtland, The Ohio Fuel Gas Co., Columbus; F. X. Mettenet, vice-president, The Peoples Gas Light & Coke Co., and Elizabeth J. Lynahan, chairman, A. G. A. Home Service Committee

"The Home Call" as the basic activity of the home service program, together with suggestions and advice on its conduct, was convincingly explained by Helen Kirtland, The Ohio Fuel Gas Co., in her talk, "Techniques of the Home Call." The talk contained ideas many of which could be adopted by newcomers to home service so as to better their contact approach in this important phase of work with customers.

"Aids for Demonstration" was the subject discussed in two parts by Gladys Pride, Southern California Gas Co., and Mrs. Mary Belle Burnett, The Cincinnati Gas & Electric Company. Miss Price discused "The Dramatic Touch"—the feature that is essential in a good demonstration presentation. Mrs. Burnett stressed the importance of the food display as a summarization of a good demonstration and, in fact, a demonstration in itself when used in window displays or on the sales floor. Charts and slides illustrated Mrs. Burnett's paper.

"The Voice With a Smile" was the theme of a presentation by the Illinois Bell Telephone Company. A motion picture film "Telephone Courtesy" was shown and a discussion of telephone techniques was presented—following which, during the recess period, mirrophone demonstrations were presented. Two booklets were made available for those in attendance, entitled "The Voice With a Smile Wins" and "How to Make Friends by Telephone." Copies are available through the different areas of the Bell Telephone System.

Information from the food and equipment industry helped to bring members of the workshop up to date on new developments in food products and utensils. "What's New in Meat Cookery" was presented jointly by Mrs. Beth Bailey McLean, Swift & Co., and Esther Latzke, Armour & Co., both in Chicago. As nationally-known home economists, their papers gave answers to many of the questions posed by home service in answering customer inquiries.

"Small Gadgets for Mrs. Homemaker" was given by Mrs. Edith Ramsay, equip-

Welcoming luncheon at Congress Hotel, where delegates and guests were addressed by C. S. Stackpole, chairman, A. G. A. Residential Gas Section, Consolidated Gas, Electric Light & Power Co. of Baltimore, and F. X. Mettenet, vice-president, The Peoples Gas Light & Coke Co., Chicago

ment editor, *American Home* magazine, who brought along small utensils for display following her visit to the immediately preceding housewares show.

A demonstration and a movie showing were also presented by two other national food companies—a demonstration of "Package Mixes" by Reidun Kobler, The Quaker Oats Co., Chicago, and a group of technicolor "shorts" on the cooking of bananas by the United Fruit Company which were introduced by Ina Lindman, director of home economics.

"Equipment Training for Home Service" brought the schools to the workshop in a discussion by Mrs. Louise J. Peet, head of the household equipment department, Iowa State College. This college gives a special equipment course and graduates are found in many gas company home service departments.

"On the Making of Speeches" was the subject expounded in a dramatic presentation by Dr. Irving J. Lee, Northwestern University. Dr. Lee discussed stage presence, planning a talk, and effective possibilities of its presentation.

Two luncheon programs were attended not only by workshop delegates but also by many home economists from newspapers and magazines in the Chicago area. For the first "welcoming luncheon" C. S. Stackpole, chairman, A. G. A. Residential Gas Section, and sales manager, Consolidated Gas, Electric Light & Power Co. of Baltimore, addressed greetings to the group and pointed up ways in which home service fits into sales promotion activities.

The question "What Does Management Expect of Home Service?" was posed to an expert, F. X. Mettenet, vice-president, The Peoples Gas Light & Coke Co., Chicago. Mr. Mettenet outlined for the luncheon group the functions and obligations of a sales organization and pointed up the basic philosophy which is needed in contacts with customers.

"All sales people must have a basic fundamental," he said, "philosophy of service—service to the customer."

He also outlined the essential qualifications of a well-grounded home service representative. Summarized, these are: In addition to the attitude of willingness to serve and to give—constant self-training, a thorough knowledge of her job, and the ability to get along with the customer and with one another.

Head-table introductions at the luncheon included members of the Program Planning Committee, and as local guests, James F. Oates, Jr., chairman of the board, and George F. Mitchell, president, The Peoples Gas Light & Coke Company.

"Serious and Gay" was the subject of a participation program for the second luncheon. Ruth B. Soule, The Brooklyn Union Gas Co., outlined the philosophy underlying the handling of questions or situations which arise every day in home service departments. These experiences, sometimes trivial or even amusing, nevertheless are deadly serious and important to the customer. Typical situations and their handling were described, with Miss Soule stressing the patience needed in order to understand each inquiry or complaint.

Group participation brought forth a series of amusing experiences in home call work from which the chairman could conclude that a qualification for home service was a sense of humor.

A part of any workshop program is the opportunity to participate in controlled discussion groups. Meeting on two different afternoons, small groups divided into system, city, or one-girl departments, were directed by discussion leaders who had polled beforehand the subjects on which most discussion was desired.

Leaders of the seven groups were: Frances Berry, Oklahoma Natural Gas Co., Oklahoma City, Okla.; Mrs. Rita Mataraza, Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y.; Susan Mack, Boston Consolidated Gas Co., Boston, Mass.; Lucille Boettcher, The Laclede Gas Light Co., St. Louis, Mo.; Elsie Pierson, Central Electric & Gas Co., Lincoln, Nebraska; Katherine Heffernen, Wisconsin Public Service Corp., Green Bay, Wisc., and Kathryn Barnes, Equitable Gas Co., Pittsburgh.

The Program Committee

Members of the Program Committee presided at the sessions of the workshop with Elizabeth Lynahan in charge. Representing the American Gas Association, Jessie McQueen, home service counsellor, set the theme in the opening session, "Spotlighting Home Service in the Gas Industry." Highlights of home service operation, current trends, and a list of activities now moving slowly but growing in importance, were discussed.

In closing the workshop, Miss Lynahan emphasized the philosophies of service which had been brought out forcibly and subtly in many addresses, together with techniques of operation, as the summarizing features which the workshop delegates could put into jobs at home to keep home service on the straight-away.

Other members of the Program Committee were Helen Kirtland, The Ohio Fuel Gas Co.; Mrs. Mary Belle Burnett, The Cincinnati Gas & Electric Co., and Eleanor Morrison, Michigan Consolidated Gas Company.

Credits

Highlighting the success of the workshop was the hospitality shown at all times by members of The Peoples Gas Light & Coke Company. Each representative of the home service department was assigned special responsibilities such as helping with the demonstrations, exhibits, or distribution of papers. H. D. Valentine and E. J. Finnerty assisted in the registration. Marie Meyers was in charge of publicity, and the photographic department aided in the showing of films and helped provide the illustrations used with this article.

Social hours following each day of the workshop were a popular contribution to the proceedings. The first hour was sponsored by Hardwick Stove Company, Cleveland, Tenn.; the second by Cribben & Sexton Co., Chicago, and the third by Geroge D. Roper Corp., Rockford, Illinois.

Southern Counties Starts Them Young

School children in cake baking demonstration conducted by Santa Monica Bay Division home service department, Southern Counties Gas Co.

"Gas-Mizer" Slashes Water Heating Costs

A description of reclaimer designed by two Brooklyn gas company employees which has effected big savings in laundry field

ONE of the most interesting and most promising devices to appear on the market recently is the "Gas-Mizer" heat reclaimer developed by Harry B. Wilson, commercial sales manager, and Henry Hartmann, engineer of commercial gas utilization, The Brooklyn Union Gas Company.

Already the subject of great interest by gas companies and others from coast-to-coast and from Texas to Canada, the novel reclaimer is what might also be called a preheater. It has proven a real boon to The Brooklyn Union Gas Company in their efforts to enter the self-service laundry field. The company reports savings up to 30 percent and feels that their success in that field is due almost entirely to the reclaimer.

Many Installations

Even before the recent skyrocketing of competitive fuel prices, Brooklyn Union was established in this new market. Currently they have almost one hundred gas-fired installations representing an annual load of about 158 million cubic feet and a corresponding revenue of about $126,400 using 540 B.t.u. gas at 80 cents per M.c.f. Average monthly consumption per job is about 147,000 cubic feet. All but about six installations have heat reclaimers and it is expected that these jobs, which were among the first installed, will soon have the device.

The reclaimer consists of a welded steel tank which houses three copper coils and seven baffles. Six of these baffles guide the warm drain water, which enters the reclaimer at one end called the target area, over the copper coils at a relatively high velocity and thence to the spillway.

This procedure accomplishes maximum heat transfer and alleviates stagnation which otherwise might occur at the bottom of the reclaimer. To assure counter-flow, the cold water is fed into the coil located at the outlet end of the reclaimer where the spillway is located and is discharged from the reclaimer through the coil located next to the target area.

A novel feature is the use of a dam baffle in the target area. This baffle consists of a rectangular steel plate fastened by bolts, on which it is hinged, so that there is only about 1/16 inch between the first baffle and the dam baffle. This acts in effect as a dam and restricts the flow of large amounts of water which sometimes occurs when many machines empty at the same time.

The water in the target area as a result will back up and assume a height level with the top of the dam baffle which is six inches higher than normal. The purpose of this action is to enable a more continuous flow over the coil in order to assure maximum efficiency from the reclaimer.

Each of four compartments has a 1/4 inch drain opening which is tapped to accommodate a 20-inch-long stand pipe. The compartment may be drained simply by unscrewing the stand pipe which is screwed in hand tight. The drain connection should be tapped into the sewer or slop sink to facilitate cleaning.

An important difference between this "Gas-Mizer" reclaimer and the first model is that it is designed to preheat both the water fed to the water heater and the cold water which is piped to each washing machine. The original model preheated only the water fed to the water heater.

It is interesting to note that almost as much saving is realized during the winter months by preheating the cold water to the machines as is accomplished by preheating the water to the water heater.

Since the device is more efficient during the winter months because of the cold inlet water and because of the effect of standby, it follows that the effective percent reduction on an hourly basis in required water heating capacity is more than the 30 percent reduction previously referred to, in year-round consumption.

Reclaimer (right) and slop sink (left) with four drain lines from the washing machines emptying into the reclaimer. New type "Gas-Mizer" has one inlet connection and one outlet connection to eliminate external header work shown above. The flexible hose is used to flush the coils

Tests conducted by Brooklyn Union engineers showed a reduction in consumption of 35-45 percent over the period of one hour. While this figure may be applied theoretically to the reduction in required water heating capacity which is accomplished as well as chimney size, it is recommended that the more conservative figure of 30 percent be used.

It is the policy of the Brooklyn company to allow 45 c.f.h. input for each washing machine when a reclaimer is used and 65 c.f.h. when it is not used. This is believed to be sufficiently conservative at this time but may have to be changed in the future if washing machine manufacturers make changes in the machine or time cycle to require an increase in input.

The "Gas-Mizer" reclaimer not only does an efficient job of preheating water but according to the company's salesmen, it is a silent salesman as well. This claim is due to a very convincing demonstration to which skeptical prospects are subjected.

Prospects in *(Continued on page 26)*

Cincinnati—"City Closest To America"

Civic-minded utility promotes nation-wide advertising campaign to attract new industry to Greater Cincinnati area

PLANS for a nation-wide advertising campaign to attract new industries to the Cincinnati industrial area were disclosed February 17 by Walter C. Beckjord, president, Cincinnati Gas & Electric Company.

More than 400 prominent industrialists, civic leaders, city and county officials, and newspaper and radio executives heard the utility president discuss the national promotional program at a luncheon at the Hotel Netherland Plaza, Cincinnati.

"Cincinnati's greatest asset, the character of its people, will be stressed throughout the campaign which will open with a full-page advertisement in the February 23 issue of *Time* magazine," Mr. Beckjord reported.

He pointed out the many major projects being planned to promote the progress of Cincinnati, including more and better housing and express highways, and added, "there is another project that is also vitally needed. It is one that has been talked about for a long time—one that everyone agrees is necessary to the promotion of this community's prosperity. It is the project of attracting new industries to this area."

Eight full-page, black and white advertisements will appear in *Time* magazine, and 23 are scheduled for newspapers. The campaign will continue through the remainder of 1948.

"Cincinnati—The City Closest to America" will be the slogan of the campaign, according to Walter R. Keagy, vice-president in charge of public relations for the company.

"It's the people in Cincinnati who really make it the city 'Closest to America,'" Mr. Keagy declared.

The utility's industrial development program has been developed along two broad lines, J. R. Hartman, vice-president, reported.

"The first and most important phase has to do with existing industries. Our engineers are constantly at work with our industrial customers, making studies and suggestions which will increase production, reduce cost and improve quality."

He said that by this means the company endeavors to place existing industries in the best possible competitive position with similar industries in other parts of the country. "It is more important to save a present industry than to gain a new one," he added.

"The other phase has to do with the attraction of new industrial enterprises to our area. Studies are constantly being made of the many factors which enter into the problems."

Stockton, West & Burkhart, Cincinnati advertising agency, is handling the magazine and newspaper accounts.

You can't catch it...with a camera!
Sure, you can take a picture of its skyline, its buildings, its factory chimneys.
But that's not Cincinnati. That's not what makes it the great city it is for a family—or a business—to grow up in.
It's something more important, too, than the fact that Cincinnati is a city of diversified industries. Or that it's the natural gateway between the North and the South. Or that it's closer than any other city of its size to the geographical center of United States population.
WHAT IS IT?
It's the people, here. It's their closeness to the American way of life. It's their attitude . . . the attitude which built America and which makes it perhaps the world's last remaining land of opportunity.
You see it reflected in the empty hall that greets the crackpot who comes to town to speak . . . in the full house that greets a performance of the Summer Grand Opera. You see it reflected in honest, efficient city-manager government at City Hall . . . in the way the entire city supports a Red Cross campaign and the annual Community Chest.
It's this attitude . . . this solid sense of responsibility on the part of management, employees, union leaders . . . that makes Cincinnati the city "closest to America."
It's the most important thing any business can look for, today, in choosing a location for a new factory or office. They'll find it—in Cincinnati.
* * * *
Would your company like to know more about the advantages of locating in the city that's "closest to America"? Write The Industrial Development Department, The Cincinnati Gas & Electric Company, Cincinnati, Ohio.
DID YOU KNOW
•That 60% of the U. S. population lives within 600 miles of Cincinnati?
•That it costs less to send a pound of parcel post to every person in the U. S. from Cincinnati than from any other city?
•That Cincinnati is a rail-river-highway hub with 8 major rail trunk lines, 12 interstate truck lines reaching 25 million people overnight? With low cost transportation on the Ohio River and 15,000 miles of inland waterways?
•That Cincinnati has the lowest average freight rate to the entire United States as compared to any other large distribution center?
•That Cincinnati is close to raw materials—the nation's bituminous coal center is a state that is the second largest steel producer?
•That 60% of all major industry classifications are represented in metropolitan Cincinnati?
•That Cincinnati has a dependable gas and electric supply—with a long-range expansion plan insuring this same fine service in the future?
CINCINNATI
the city closest to America
The CINCINNATI GAS & ELECTRIC Company
Serving The Greater Cincinnati Area

This full-page advertisement which appeared in February 23 issue of "Time" magazine is first of eight scheduled for same magazine and 23 planned for newspapers in company's 1948 campaign

New Freedom Gas Kitchens Grow in Brooklyn

Angela Papa and Martin Gibbons in a New Freedom Gas Kitchen

Gas company sets up and conducts a first-class self-sustaining kitchen sales program

BY MARTIN GIBBONS

Supervisor, New Freedom Gas Kitchen Program, The Brooklyn Union Gas Co., Brooklyn, N. Y.

A PAR ACTIVITY

EARLY in 1943 the American Gas Association launched promotion of the New Freedom Gas Kitchen Program and stimulated a great deal of activity by member gas utilities.

A proposal to inaugurate a formal company program, in conjunction with the A. G. A. plan, was approved by the executives of The Brooklyn Union Gas Company in September 1945 and simultaneously the position of supervisor, Kitchen Program, was created as a full-time responsibility in the new business department.

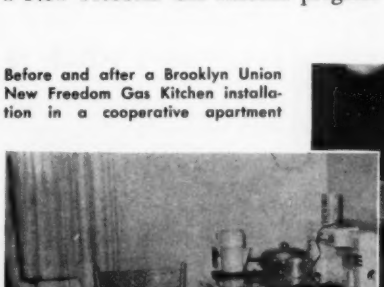
Although a complete plan had not been formulated in any detail, due to wartime difficulties, the release of the supervisor from all other duties made the future course easier to chart and permitted him to control more effectively the display kitchens on the eight widely-distributed company sales floors throughout Brooklyn and Queens. Two kitchen cabinet installation firms immediately contracted to handle our leads. At the present time, we have four such cooperating kitchen contractors handling our installation work for this program.

Once the broad framework of the company program was formulated, it became necessary to stimulate the interest of our sales representatives. Giving their enthusiastic cooperation required a series of short and informal educational sessions in classes and actual field experience in the kitchens of likely prospects. Once the sales representatives understood the advantages and potentialities of the New Freedom Gas Kitchen program, it was not difficult to obtain their whole-hearted and willing support.

The subordinate factors that make up a New Freedom Gas Kitchen program are divergent ones, at best, and require a great deal of administration and planning to make the program successful. Such factors involve displays, cooperating kitchen contractors and their representatives, sales floor personnel, district sales representatives and plumber dealers, all coordinated by the kitchen planning supervisor. The functions of each of these component parts are as follows:

Displays: (Model Kitchens)—Since the inception of the program, new display units have been added to the various sales floors. Today we have appliances in their most natural and most beautiful settings in each of our eight branch offices. Most of these displays are purchased outright with the proviso of regaining fifty percent of the cost should

Before and after a Brooklyn Union New Freedom Gas Kitchen installation in a cooperative apartment



Brooklyn sales representative demonstrating gas kitchen features to prospective customers

the displays be returned to the kitchen firms who supplied them. A provision is also made in the agreements to have the kitchens changed, from time to time as new models come in, at a yearly cost of $200 to $300.

Another important use for display kitchens is their installation in approximately 35 plumber dealer shops in Brooklyn Union territory. Since each plumber dealer must invest several hundred dollars in a display, there is further incentive for him to renovate and redecorate his shop, thereby creating a modern and attractive merchandising center for the sale of gas appliances.

Cooperating Kitchen Contractors—Each contractor has agreed to furnish qualified representatives to plan and estimate the cost of kitchens. Their services are used by our men to close sales and the contractor's representative handles all the necessary contractual, financial billing, and installation details. For our services at Brooklyn Union, we receive a commission from the kitchen contractor which is sufficiently large to cover promotional expenses.

Sales Floor Personnel—Our sales floor personnel are trained to explain the extent of the kitchen planning service. To stimulate interest in the program and to compensate them for their time, a commission is paid on all leads turned in on which sales are made. Inquiry on the part of potential customers gives an excellent opportunity to the floor salesman to present the story of gas and gas appliances. If he is unable to complete the sale of an appliance at the time of inquiry on the floor, another opportunity is offered when the district representative (outside salesman) follows up the kitchen lead in the prospect's home.

District Representatives—The outside salesman obtains leads in one of several ways—arousing interest while in a consumer's kitchen on other business, leads submitted by sales floor personnel or plumber-dealers, and inquiries initiated by consumers themselves.

It is the job of the district representative to follow up leads meticulously and, through sales experience, to screen the genuinely interested prospects from the casual information seekers. Each lead offers an opportunity to the outside salesman for promoting all kinds of gas appliances to a potential consumer.

Once interest has been aroused in the prospect, an appointment is arranged for the kitchen contractor's representative or the company's kitchen supervisor to accompany the district representative on another visit to the prospect's home. At this time layouts are discussed and estimates furnished. Thus our district representative has at least three chances to whet the appetite of a prospect for gas and its varied uses.

Plumber-Dealers—To enlist the support of the plumber-dealer in the New Freedom Gas Kitchen Program, a lead commission of ten percent is paid on all kitchen sales, resulting from names submitted by them. Inasmuch as this is a net profit and the plumber-dealers are in no way responsible for delivery, installation and service, the offer is generally accepted as equitable. In addition to their appliance sales commissions, the plumber-dealer gains the connection work on the appliances and sink.

In order to augment our promotional work, a limited number of plumber-dealers were allowed to purchase kitchen units for display in their shops. This not only stimulated the dealer, as mentioned, to spruce up his shop but permitted the display of gas appliances in a natural setting. Sale of gas appliances was noticeably increased as a result.

Furthermore, to make the purchase of

Winners in company's kitchen sales contest and three cooperating manufacturer representatives

these kitchen displays a practical business transaction, the cabinet manufacturers agreed to an additional five percent commission on all sales made by a display dealer until the display unit was amortized up to 75 percent of the original cost. This gives the plumber-dealer an added incentive to furnish productive leads, and broadens the scope of the district representatives in presenting the story of gas to consumers.

Supervisor of Kitchen Planning—The over-all supervision and promotion of the New Freedom Gas Kitchen Program within The Brooklyn Union Gas Company is the direct responsibility of the supervisor. One of the most important aspects of his job is to find kitchen contractors who are able and willing to offer good equipment and service to Brooklyn Union's consumers. He must also decide, in conjunction with local company personnel, the design and location of our company's display kitchens.

Other duties of the supervisor include the continual instruction of all sales personnel on the latest developments in kitchen planning and the preparation of individual layouts and estimates for prospective customer's kitchen units.

Sale and promotion of New Freedom Kitchens had many first year obstacles to overcome during 1946. Initial acceleration of the program was hampered a great deal by lack of available displays, materials, qualified personnel and woeful absence of educational literature.

Such difficulties forced all but one of our kitchen contractors to withdraw from active participation in our company program. The remaining firm decided to allot all their materials to Brooklyn Union, despite the unavailability of trained kitchen equipment salesmen and the difficult obstacles facing the kitchen program. An investigation conducted by the kitchen planning supervisor was instigated in order to discover why sales were steadily falling off. It was quickly shown that ineffectual salesmanship was the answer and steps were immediately taken to remedy the situation.

The fact that the kitchen planning supervisor had produced a notable increase in sales during the latter part of 1946, as the program took an upturn for the better, convinced many skeptics of the practical value of the activity. It also permitted the most active cooperating kitchen firm ample time to secure the services of a competent sales representative to work with the company.

Average installation price of kitchens sold during 1946 was $585 each. Since this was the net cost, additional labor costs raised the price another 15 per cent. The following ratios, based on total kitchen sales for 1946, are self explanatory:

Kitchens Sales	*New Ranges Sold*	*Old Ranges Retained*	*New Refrigerators Sold*		*Old Refrigerators Retained*	
			Gas	*Electric*	*Gas*	*Electric*
67	50	17	33	4	14	16
Percent	74+	25+	49+	5+	20+	23+

When the addition of trained sales representatives had been effected it became possible to devote full attention to incoming leads. A schedule was prepared whereby each branch office was allotted the services of a kitchen planner for all or part of a day, according to the size and activity of the branch. This enabled company representatives to schedule definite appointments with prospects for themselves and the kitchen planner without fear of discovering that the latter had already made previous commitments. These appointments are now recorded in the branch office with a time interval of an hour and a half between calls in order to prevent duplication of appointments by district representatives.

The coordinated schedule instilled confidence in the sales force and strengthened their belief that the kitchen program was directed toward prompt service without unnecessary complications. The result was an increasing upward swing in sales during 1947 and the addition of full-time representatives by several kitchen firms to work in conjunction with Brooklyn Union's sales representatives. Perhaps one of the most gratifying factors in the successful operation of the New Freedom Gas Kitchen Program was the complete authority invested in the supervisor of the Kitchen Planning Group which eliminated possible interference and overlapping of responsibility.

To stimulate activity and interest in the kitchen program, a contest was arranged for the latter part of 1947. The cooperating kitchen firms agreed to subscribe $520 as prize money, each making contributions in proportion to the sales contracted for by their respective firms. The success of this promotion may be gauged by the 122 sales made from September 1 to December 15, 1947. Total kitchen sales for 1947 reached 269, an estimated $130,000 volume.

That the program is progressing can be seen from the following comparison of 1946 and 1947 sales figures:

1946 Sales		*1947 Sales*	
December	6	December	29
Total	67	Total	269

Of the 269 kitchens sold during the year, a spot check of 90 kitchens (including 54 installations sold during the contest) revealed the following breakdown:

Kitchens Sold	*New Ranges Sold*	*Old Ranges Retained*	*New Refrigerators Sold*		*Old Refrigerators Retained*	
			Gas	*Electric*	*Gas*	*Electric*
90	61	29	29	14	20	27
Percent	68	32	32	16	22	30

In conjunction with efforts to do a first-class promotional job on the New Freedom Gas Kitchen Program, it has been our aim to conduct the promotion on a self-sustaining basis. There is every reason to believe that this goal has been achieved by keeping the kitchen planning group restricted to one employee and by means of the income received from the cooperative plan with kitchen firms.

At the end of two years of the program, formulated during difficult periods of shortages, it is with some satisfaction that we look forward to the future. The steady increase in consumer interest and the continuing high ratios of gas appliance sales to kitchen unit sales provide a healthy foundation for the future.

What's New In Gas Research

A look at newly published galvanic corrosion report and gas utilization and gas production work both here and abroad

CORROSION WORK NOW AVAILABLE ● An interesting report has been published by Case Institute of Technology, Cleveland, O., describing the work covered in the first part of American Gas Association Research Project DGR-3-WH, "Galvanic Corrosion of Dissimilar Metals as Applied to Gas Hot Water Storage Heaters." Arthur Friedman, The Cleveland Heater Co., Cleveland, O., is chairman, A. G. A. Technical Advisory Group for Domestic Gas Water Heating Research.

Arthur Friedman

Prepared by Dr. Robert C. Weast, Case Institute, the report covers laboratory work done preliminary to test work on a large number of full-size tanks.

Since tests which are conducted under actual service conditions are the best criteria for evaluating corrosion inhibitors, such tests are being made under the present program. However, such a procedure is slow and requires considerable time before sufficient data may be collected to obtain an accurate evaluation of the true worth of corrosion inhibitors. In an effort to obtain corrosion results in less time than that required by regular installations, a portion of the present program is being devoted to testing small-scale set-ups.

The number of hot water tank failures caused by corrosion is tremendous. It has been estimated that more than ten thousand tanks per week must be replaced because they have corroded to an extent where they are no longer usable. There are many factors contributing to this problem which confronts American homeowners, plumbers and water heater manufacturers.

Included in a list of such contributing factors would be imperfect steel and galvanizing, water composition, operating temperature and the use of dissimilar metals in connections. It is this last factor which is the concern of the present research under project DGR-3-WH.

When, due to structural, economic or other reasons, the use of dissimilar metals cannot be avoided it is usually possible to reduce corrosion by some of the following methods:

1. Using insulating unions, couplings or gaskets to separate the metals.
2. Paint both the anode and cathode. Painting only the anode often causes formation of deep pits on the anode where the paint film fails.
3. Maintain a large anode/cathode ratio.
4. Cathodically protect the metals by use of expendable metals or impressed current in opposition to the current generated by corrosion.
5. Cause formation of insulating protective films such as carbonates, silicates or phosphates.

It is only through research that it can be learned which of the above protection methods is most suitable for a particular installation. Through still further research, particularly fundamental research, it should be possible to find means for completely stopping galvanic corrosion. When this goal is reached one more step forward will have been made in being able to predict the usual lifetime of a hot water storage heater.

BRITISH EMPHASIZE BURNER RESEARCH ● Indicative of the emphasis which the English gas industry is placing upon research on various phases of gas burners design and combustion is the fact that six of 13 papers presented at the recent research meeting of the Institute of Gas Engineers, London, England, were on this subject.

GAS PRODUCTION RESEARCH ABROAD ● One of the many requirements of working research is to keep abreast of developments along similar lines in other localities. Of particular interest in this connection is an article in the January 1948 issue of *Coke and Gas* magazine summarizing British research on gas production which parallels work that the American Gas Association is currently sponsoring at the Institute of Gas Technology and other research institutions.

In the field of gas production British gas men are placing emphasis on the use

High pressure reactor of the type which has proved useful in gas production research work

of the Lurgi process (gasification under 200 or more p.s.i. pressure, using oxygen). Although the production of cheap oxygen is a major problem, the most difficult problem is the caking of coal, particularly in the presence of hydrogen, which may make the process unworkable. To continue the work a new high pressure reaction chamber is being considered to permit study of the behavior of bituminous coals under different pressures of steam and air. It is pointed out that progress will be slow until the fundamental investigations have been made.

Another project of interest is the production of methane from either carbon monoxide or carbon dioxide and hydrogen. This work, in which the great difficulty was the deposition of carbon in the catalyst, has apparently proceeded very well. Work is now well in the "pilot plant" stage and nearly ready for development by the industry. The interest in the production of methane is as a possible water gas enriching agent, replacing oil.

Production of oil gas also received some attention. One method used was to atomize gas oil upward in an empty vertical retort. Another scheme combined the water gas and oil processes by the use of a continuous, vertical retort operated about half full. Coke was charged and discharged at approximately 75 pounds per hour; steam (90 pound per hour) was admitted at the bottom and oil (31 gallons per hour) was fed in at the top in a thin stream which flowed down into the coke without touching the retort walls. 950 therms of 925 B.t.u. gas per retort per day were produced.

One other point brought out in connection with oil gas production was the difficulty in producing a 500 B.t.u. oil gas without affecting the ATB number (an

index of the burning quality of the gas). It was felt by some gas engineers that this working to a definite ATB number would increase the cost of gas and that a better result might be obtained by making appliances that could burn gases of "reasonably divergent combustion characteristics."

AUTOMATIC IGNITION PROBLEMS ATTACKED ● In order to burn, gas must be ignited. It must be ignited quickly and surely. When ignition is automatic, it becomes a major and vital link in the sequence of operations which add up to satisfactory and acceptable appliance performance.

Automatic ignition of residential and commercial gas appliances is increasing in importance, both because of the greatly increased number of appliances being operated automatically and the steadily higher standards of convenience and service which the gas industry is rendering its customers. This has resulted in a concentration of American Gas Association utilization research on ignition problems. While other methods of automatic ignition of gas appliances are possible and are receiving attention, research is concentrated on the pilot method because of its general practicability and the possibility of adapting it to all types of appliances.

An automatic ignition system using one or more pilots consists of a number of essential parts, each of which are susceptible to different designs and to different assemblies with relation to each other. Important parts of automatic pilot ignition systems are pilot burners themselves, main burner valves which open only when the pilot is in full operation and ready to ignite the main burner, sensitive elements that actuate pilot safety valves, and auxiliary pilots which burn momentarily and actuate the main mechanism.

Manufacturers have shown both a high degree of design skill in making these parts, and commendable skill in engineering their assembly and installation to suit the needs of hundreds of different models of gas appliances. Automatic pilots are reliable and give generally satisfactory service on natural, mixed, and manufactured gases.

However, there are a number of technical factors in the design of pilot ignition systems, in the selection of materials in hot zones, and reducing causes for excess servicing which have not been fully explored scientifically. For instance, the location of pilot burner ports with respect to type, size, and location of main burners, is susceptible to greater technical treatment than it has received. Likewise the design of pilot burner ports themselves is important, as is the matter of materials from which pilot burner heads are constructed. These latter two features are affected by the breakdown of gases at the pilot ports, causing carbon and other formations. Gum formations in the pilot system are still a problem in some cases.

Much accurate technical investigation is needed on the basic design and performance of bimetal, bulb, thermo-electric and other actuating elements. The gradual clogging of the air inlets of aerated pilot burners from dust and lint is susceptible to improved design treatment and is an important item in servicing appliances with automatic ignition. Tied in with all of these detailed problems of reliable automatic ignition are such problems as the speed of ignition and noise of ignition.

The Association's Committee on Domestic Gas Research is sponsoring a series of research projects at the A. G. A. Testing Laboratories which constitute a concerted technical attack on the subject of automatic ignition. The following research bulletins have been published on this subject:

No. 14—Fundamentals of Automatic Flash Tube Lighter Design,

No. 16—Relation of Burner Volume to Ignition and Extinction Characteristics of Gas Range Top Burners,

No. 17—Automatic Flash Tube and Pilot Ignition of Oven and Broiler Burners on Manufactured Gas,

No. 21—Single Point Flash Tube Ignition of Oven and Broiler Burners,

No. 28—Electric Ignition of Gases,

No. 42—A Study of Bimetallic Thermal Elements,

No. 44—Research in Distribution of Heat in Domestic Gas Range Ovens—Effect of Various Types of Automatic Temperature Contols,

No. 46—Research in Design Methods of Preventing Closure of Gas Pilot Burner Primary Air Openings by Dust and Lint.

The following active projects are part of the automatic ignition research program:

DGR-1-WH—Research in Longevity and Applicability of Thermal Elements Used in Automatic Gas Pilots for Gas Water Heaters,

DGR-3-B—Research in Design Methods of Preventing Closure of Gas Pilot Burner Primary Air Openings by Dust and Lint,

DGR-5-B—Research in Pilot Design, Construction and Performance,

DGR-9-B—Research in Range Top Burner Ignition at Reduced Gas Input Rates.

Problems connected with automatic ignition of heavy duty commercial appliances are somewhat different from those of domestic appliances due to different conditions of use. The A. G. A. Committee on Industrial and Commercial Gas Research is studying this phase of ignition prior to extending automatic ignition research work to heavy duty appliances and equipment.

Half-Million Witness P. G. A. Appliance Display

AN impressive 2,000 square foot gas appliance exhibit sponsored by the Pennsylvania Gas Association was the largest unified display at the Pennsylvania State Farm Products Show in Harrisburg the week of January 12.

Believed to be the largest indoor exhibit of its kind in the world, the show included over 10,000 exhibits and attracted 525,000 visitors from all over the United States, England, Canada, Mexico, Argentina, Brazil and Peru.

Gas was used throughout the huge building in a variety of individual exhibits and enterprises. Gas appliances played an important part in the activities arranged for the comfort, convenience and instruction of the visitors.

The setting for the gas appliance display was designed by T. J. Taylor, The Philadelphia Gas Works Co., and was by far the most outstanding exhibit ever sponsored by the Pennsylvania Gas Association.

Automatic Gas Water Heater Fundamentals

Years of research and the work of many minds have developed a well-designed major appliance

BY H. B. KIVLAN and R. M. NORTH

Ruud Manufacturing Co., Pittsburgh, Pa.

H. B. Kivlan

THE modern automatic gas water heater is a simple device compared with other popular appliances; but it is a development of many years and many minds in the water heater and allied industries. It is sufficient that we understand and appreciate the fundamentals of the modern automatic gas water heater which brings us so much valuable gas load today.

Far ahead in numbers and importance, is the automatic storage type of gas water heater. This is the type in which the heater and storage tank, with the necessary controls, insulation and accessories, comprise a single unit; it is designed for residences of all types. It is the type of water heater commonly recommended for houses, from minimum cost dwellings to deluxe suburban estates, and for stores, shops, small industrial plants, and a whole host of other applications.

Most domestic gas water heaters today are the automatic storage type. That is to say, they heat water in a tank to a predetermined temperature, turn on and shut off the gas and keep the hot water stored for use with as little heat loss as possible. Functionally, the most important part of an automatic storage water heater is the tank; and strange as it may seem, the life of the water heater is the life of the tank. The tank, or water container, used in the manufacture of this type of water heater can be galvanized steel, copper, everdur, Monel, or it can be of the glass-lined variety. We have to deliver our water through pipes under pressure, so we must have a closed vessel, one that will prevent the water being pushed out when the faucet is closed. The tank must be constructed to withstand ordinary city water pressures. All approved tanks are designed and tested to withstand pressures well beyond that point.

The second function of a modern water tank is as a heating surface. There are two methods of tank construction for heating purposes. The type shown in Figure 1 heats water through its bottom and outside surfaces. It is generally called "outside flue type water heater."

R. M. North

The other type tank has one or more tubes inserted through it, and the heating is done on the bottom and through the tubes. This style tank is generally called a "center flue" type (Figure 2). Either type of tank can be, and generally is, constructed to get maximum heating efficiency out of the gas. A. G. A. requirements call for high thermal efficiency. Most water heaters go well above 70 percent, but it is neither feasible nor wise to take 100 percent of the heat from the gas. Such a water heater would have excess condensation and the cold flue gases would be so heavy that they would block the draft. When that happens, fresh air cannot get to the burner, and we have inefficient combustion.

Bear in mind that we are talking about *thermal efficiencies*—the percentage of heat units absorbed into the water when the heater is in operation. This is quite different from *service efficiencies*—which means the percentage of heat units delivered in the hot water at the faucet.

Electric competitors talk about 100 percent thermal efficiency. But 70 percent or 100 percent thermal efficiency, the greatest loss of heat is usually not in heating the water, but in storing and delivering the hot water through pipes. Electric water heaters usually must have tanks two and three times as large as a gas water heater if they are to supply an equivalent hot water service, resulting in higher percentage of standby and radiation losses.

Now that we have a tank we must provide some way for the cold water to get into the tank and the hot water to get out (Figure 3.) Two methods of introducing cold water are used—one is through a cold water opening at the bottom of the tank, and the other is through a dip tube from the top. Either method is good, provided there is no turbulence or mixing action. To make sure, the cold water is introduced with as little mixing action as possible, the

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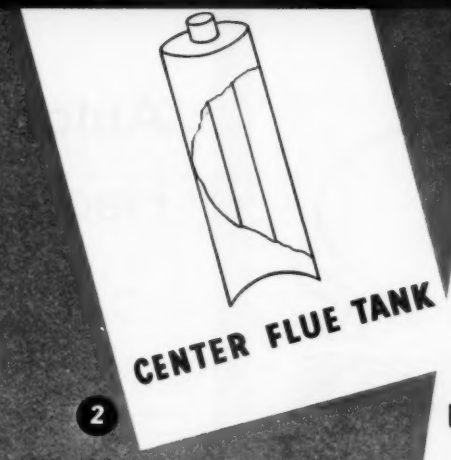
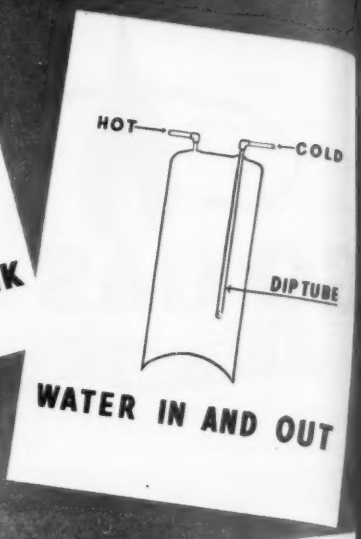
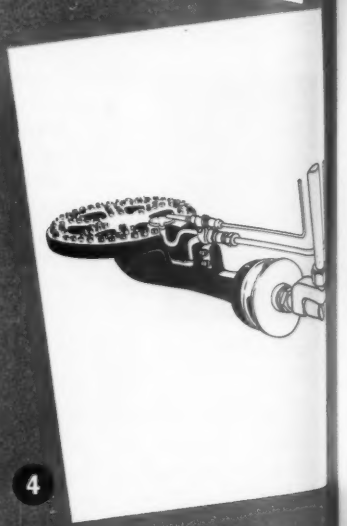
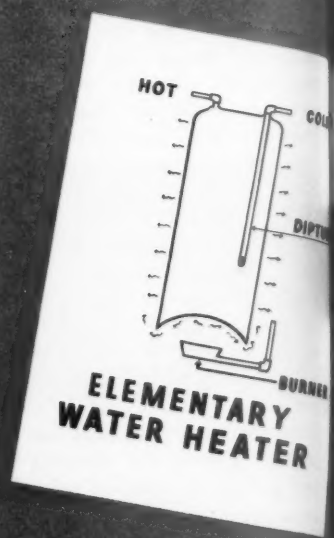
Presented at American Gas Association's Home Service Workshop in Chicago, January 21-24.









end of the tube is closed and the water flows through slots cut in the sides of the tube. Hot water, of course, is taken out at the top of the tank.

There are several types of burners used, one of which is shown in Figure 4. Some have a fixed orifice and some a needle valve. The pilot is placed so it ignites the first gas to reach the main burner.

We now have a tank and a gas burner as shown in Figure 5. By placing the tank over a lighted burner, we have an elementary gas water heater, just the same as we would have if we placed a pan of water over the burner on a gas range. But such a water heater is wasteful. Too much of the heat will be lost to the surrounding air. If we are to heat water efficiently, we must force more of the heat into the water. To do that, the gases must pass around the tank and be kept close to it, so the colder water can absorb the heat from the hot gases. The logical thing is to use a liner similar to the one in Figure 6.

The space between the liner and the tank must be just wide enough to permit the passage of hot gases at the proper speed. By the time the gases reach the top of the tank, they have given up much of their heat; and you will also notice that the liner has formed a combustion chamber. Flue liners should be heavy enough to retain their shape, as it is important to have equal flue space around the tank. Most liners are coated with lead or aluminum to prevent corrosion from dampness of condensate.

The same effect is produced in a center flue tank by the use of baffles (Figure 7.) As the hot gases pass up the center flue, the baffles retard the flow of the gases to obtain maximum heat absorption. In some cases, baffles are made in the form of a spiral to spin the hot gases and throw them closer to the side of the tube.

We now have enough parts to begin assembling our water heater. But we need some sort of support or base for the chassis. Bases are of two types, flush to the floor or with legs. Both types support the water heater and usually provide a means to hold the burner in proper position. Most bases also have openings to admit just the right amount of secondary air to support combustion and, at the same time, restrict the draft, so that the flow of cool air is at a minimum when the gas is not burning. The base we have in mind has a baffle over the secondary air inlet to accomplish that purpose.

Our water heater will now heat efficiently, but we must remember that since we are storing hot water, it's important that *we lose* as little heat as possible. If our tank is exposed to the cooler surrounding air, it will lose heat fairly rapidly. In the center flue water heater, the problem has been solved by placing insulation between the tank and the outer shell. In the outside flue type, the insulation is placed between the liner and the outer shell (Figure 8.) The insulation generally used is either spun glass or rock wool. In the proper density and thickness, both insulating materials are equally effective.

In Figure 9 we have the top of the water heater. Its primary function, of course, is to hold the chassis together at the top and protect the insulation. In an outside flue water heater, the top also serves to guide the gases over the top of

the tank and out the flue.

Most automatic gas water heaters provide a draft hood. Because installers occasionally omit the draft hood, we would like to stress its importance.

A draft hood serves two purposes—first, it is a back-draft diverter. At times, all chimneys are apt to have back-drafts. If this reverse draft is permitted to get inside the water heater, it can interfere with combustion by blocking the flow of the gases and restricting the supply of secondary air for the burner. Back-drafts are often the cause of pilot outage. By diverting the back-draft outside the water heater, these troubles are avoided.

But the draft hood is also a draft regulator. We are accustomed to hearing about flues that do not have strong enough draft. There are also flues with too strong a draft. Such a flue, if connected directly to a water heater, will speed the gases through a water heater before they can give up their heat. They will cause a cooling action to take place when the heater is idle, and they can also cause pilot outage. By using a draft hood, flues with too strong a draft pull air from the room to take up the excess drawing power. Thus, the draft through the water heater remains fairly constant.

We mentioned before that the tank is a pressure vessel and that most tanks are designed and tested well beyond city water pressures. But tanks are frequently subject to excessive pressures. These may be caused by increased pressure in the street main or from any of a number of causes. The sudden closing of a faucet can build up momentary pressures. To avoid damage to the tank, most water heaters are equipped with a pressure relief valve. These valves simply unseat slightly with excessive pressures and allow water to run out, thus relieving the strain on the tank.

If a dripping relief valve is objectionable, a water pressure reducer may be in order or, possibly, it could be piped to a drain.

Frequently, a combination temperature and pressure relief valve is used. Some cities require them by ordinance. The temperature relief valve is designed to function and allow water to escape should the temperature become excessive. Many have a fusible plug that melts around 190° F, permitting water to flow out the valve.

Finally, there are the automatic water heater controls, in many ways the most important part of the appliance.

There are two major controls (Fig. 10) :

1. The thermostat, a control to turn on the gas to the main burner when the water temperature falls below the required setting and to shut off the gas to the main burner when the water reaches its required temperature.

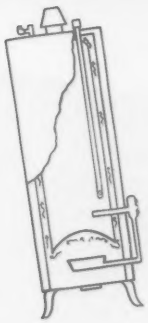
2. The automatic gas cut-off safety pilot, a device designed to cut off the gas in case of pilot failure.

Sometimes these two controls are combined in one compact housing and sometimes they are separate devices.

Thermostats, today, are usually the snap-action type. That is, they do not act until the temperature has increased or decreased the full range of the thermostat, which varies from 7° to 12°, depending on the thermostat. When the valve acts, it allows full volume of gas to flow to the burner, thus assuring efficient combustion when in operation.

Temperatures can be set at any point

(Continued on page 36)



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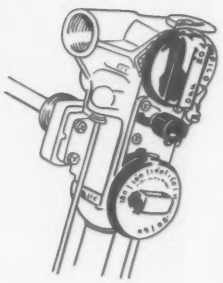

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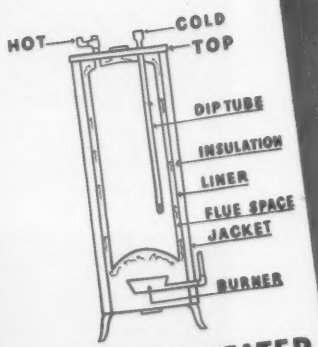
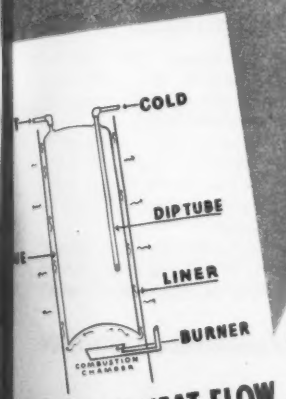


MANUAL WATER HEATER



NTROLLING HEAT FLOW

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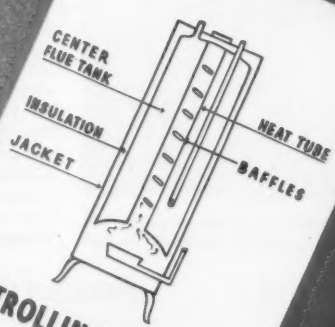
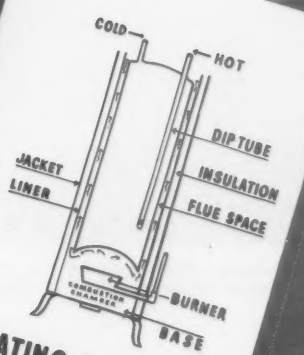


CONTROLLING HEAT FLOW



INSULATING HEAT FLOW

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Home Service Publishes New Training Booklet

A NEW booklet, "Home Service Serves the Community," has been announced by the Home Service Committee, American Gas Association, as one of a series of training booklets in the Home Service Manual devoted to the aims, organization, and operation of home service departments in the gas industry.

Mrs. Mary Belle Burnett, home service director, The Cincinnati Gas and Electric Co., and chairman, 1947 Home Service Committee, was in charge of its preparation. Forty-eight pages with 37 illustrations—the booklet brings up to date subject matter on training for home service "on the job." Sales managers as well as home service personnel should be interested in its index of information.

The lecture demonstration is featured and the contents are as follows: Planning the lecture demonstration; home service audiences for the demonstration; auditorium and platform arrangements; supplementary aids to the demonstration; test kitchen, and laundry work and preparation of illustrative material; complements to the demonstration; radio, newswriting, and dealer cooperation.

This new booklet supersedes two former booklets of the Home Service Manual entitled "Inside Activities" and "Outside Activities." It is priced at 40 cents with orders to be addressed to American Gas Association, 420 Lexington Avenue, New York 17, N. Y.

The Home Service Manual of four booklets is as follows:

1. Home Service Serves the Community (1948)—40 cents.

2. Home Service Home Calls (third edition 1947)—20 cents.

3. Home Service Aims, Organization and Publicity (1933)—10 cents.

4. Home Service Training on the Job (1947)—10 cents.

1948 Universal Gas Ranges Make Debut

FIRST models of the 1948 Universal gas range came off the production line last month, according to officials of Cribben and Sexton Co., Chicago.

Features in the new line include the reduction of exterior range temperatures by more than 30 percent and a broiler pan that can be cleaned to shiny brightness in three minutes, acid resisting enamel all over and finger-tip control of the broiler pan height.

Cribben and Sexton officials inspecting first new 1948 Universal ranges, (l. to r.) George D. Wilkinson, Thomas H. Heneage, William M. Hillborn, Harold E. Jalass and Dr. Frederick J. Port

A. G. A. Convention

ARRANGEMENTS for the 1948 Convention of the American Gas Association in Atlantic City the week of October 4 are proceeding and the event promises to be outstanding in every respect, according to the chairman of the General Convention Committee, Major T. J. Strickler, vice-president, The Gas Service Co., Kansas City. As a feature of the convention, the Gas Appliance Manufacturers Association will stage the largest and most comprehensive exhibit of gas appliances and equipment ever assembled under one roof.

The committees in charge have already started arranging the programs for the general sessions, and the meetings of the two departments and four sections. All are striving to make those programs timely and informative.

The Technical Section will hold its meetings and have its headquarters at the Ambassador Hotel; the Residential Gas Section and the Industrial and Commercial Gas Section at the Ritz-Carlton Hotel; and the Accounting Section at Haddon Hall. Hotel reservation blanks will be sent to the entire membership in the near future. Members of the various sections will be urged to secure reservations at their respective hotel headquarters at an early date as the demand will be heavy.

Bridgeport Club Women Study Program Topics

MORE than 125 women—presidents and program chairmen of parent-teacher association, church, patriotic, civic, and social organizations in the Bridgeport, Conn., area attended a "planned program forum" in the Bridgeport Gas Light Company auditorium February 9. Dorothy O'Meara, home service director for the gas light company conducted the program.

Representatives of more than 80 organizations heard Lovia Trent, editorial staff of *Agenda*, a magazine published for women's

clubs, explain how to select speakers and entertainment that will make club meetings worthwhile.

Also participating on the program were Mrs. Florence Robinson, WICC program director, who spoke on preparation of radio publicity, and Bryan L. Donaldson, *The Bridgeport Post-Telegram*, who discussed the preparation of newspaper publicity. Mrs. A. A. Levy, Mrs. Everett Benton, Mrs. James Gaffney, and Mrs. Robinson conducted a round-table discussion of bazaars, block parties, rummage sales, and "fade-away" bridge as methods of fund raising.

The gas company presented to those attending the meeting lists of home service speakers, including more than 60 men and women experts in their various fields, who are available without charge to talk to women's clubs in the area.

Citizens Gas & Coke Has Record Send-Out

ALL previous records of Citizens Gas and Coke Utility, Indianapolis, Ind., were broken in January this year by a total gas send-out of 1,196,229,000 cubic feet. This topped February 1947, the highest previous month, by 175,345,000 cubic feet.

The maximum day was January 28 when more than 46 million cubic feet of gas were used in Indianapolis and Marion County, topping any previous record by more than one million cubic feet.

During one hour's time alone, more than 2½ million cubic feet of gas were fed into the mains.

Purchasing Agents to Meet in New Orleans

MEETING in the South for the first time, the Public Utility Buyers' Group, National Association of Purchasing Agents, will hold their mid-winter conference in New Orleans, March 8-9. Charles F. Wilson, Lone Star Gas Co., Dallas, Texas, reports as group chairman that "What's Ahead" has been set as the theme of the meeting.

Featured on the program are prominent speakers in the utility industry, also commodity authorities and several purchasing agents. D. A. Hulcy, president, Lone Star Gas Co., will speak on "Purchasing and Management," and Lewis M. Smith, vice-president, Alabama Power Co., Birmingham, Ala., will address the buyers on, "The Purchasing Department and Public Relations."

Other talks will include an address by Marsh Pease, Jr., Detroit Edison Co., Detroit, Mich., on "What's Ahead in Coal," and a talk by W. F. Rockwell, Rockwell Manufacturing Co., Pittsburgh, Pa., on "What's Ahead in Meters and Valves."

Hotel reservations are in charge of Sam Fowlkes, Housing Bureau, P. O. Box 1460, New Orleans, La., and registrations for the conference are in charge of Robert N. Dowling, New Orleans Public Service Inc., 317 Baronne Street, New Orleans 9, Louisiana.

Range Campaign Gains Momentum Through Local Tie-Ins

E. J. Cappon, Sellwood Appliance Co., celebrates his winning grand prize of a trip to Mexico at a dinner in Portland. Occasion was climax of "Gas Has Got It" contest sponsored by Gas Appliance Society of Oregon, in which gas appliance salesmen of dealer members participated

"Gas Has Got It" was the theme of Oklahoma Natural Gas Company's display at the Oklahoma Hardware & Implement Association, Oklahoma City, Feb. 3-5. Over 6,000 hardware, department store, furniture and appliance dealers visited the display of eight automatic gas ranges built to "CP" standards

This display of gas ranges in the show room of the Hilo Gas Co., Hawaii, is a good example of the way local gas companies have tied their advertising in with national "Gas Has Got It" drive

Glenwood Range Reveals Sales Plans

Malcolm Leach, president, Glenwood Range Co.; Wilbur Lawson, Glenwood; Peggy Bailey, Alley & Richards, Inc.; Charles W. Person, A. G. A.; Robert H. Jones, Glenwood, display a joint Glenwood Range-American Gas Association advertisement at sales meeting of Glenwood Range Co., Taunton, Mass.

SGE Schedules New Ranges for March

Diana Lynn, who will soon be seen in "Prelude to Night," cooking on her SGE Oriole gas range

STANDARD Gas Equipment Corp., Baltimore, Md., has scheduled for March delivery to appliance dealers several models of newly designed domestic gas ranges.

Five basic new models are included in the new line with features such as the mirror oven door and automatic electrically ignited ovens. Range sizes are the conventional 36 or 40 inch units and cooking top designs include four and six burner arrangements.

Central Hudson Shows Annual Report Film

CENTRAL Hudson Gas and Electric Company's new 20-minute film, "Youth's Frontier," which interprets an annual report, was previewed recently by a wide cross-section of utility men meeting at American Gas Association headquarters in New York.

Throughout the film the four-player cast emphasizes the American idea of teamwork and outlines how the company's operations benefit the whole community; how investors place their savings to buy the plants and tools which provide employment for thousands of people; how much of the money paid to employees stays in the community, and how, through the pooling of capital, management and labor, a vital service may be rendered to factory and home, office and farm.

The company plans to show the film to its customers and also before various groups such as Rotary and Kiwanis Clubs.

Range Distributors Hold National Convention

WHOLESALE distributors of Grand gas ranges met for the first time in a national convention at the Sheraton Hotel, Chicago, January 6, with S. C. Bernhardt, vice-president, Grand Home Appliance Co., presiding.

Fred G. Miller, secretary-treasurer, announced that the company's factory is now engaged in a plant expansion program which will add 50 percent to productive capacity.

James I. Gorton, promotional director, Gas Appliance Manufacturers Association, presented plans of the American Gas Association for spotlighting fully automatic gas ranges built to "CP" standards, and showed the A. G. A. film "Winning Seals of Approval."

Howard White, executive vice-president, Liquefied Petroleum Gas Association, gave an outline of the rapid growth of the LP-gas industry. Walter S. Rowe, president, Rowe & Wyman Co., Cincinnati, O., presented the range company's advertising program for the first half of 1948 and exhibited numerous new point-of-sale advertising materials. Approximately 160 persons attended the meeting.

Columbia Gas & Electric Output Reaches New High

A RECORD gas send-out of 231,443,528,000 cubic feet in 1947 is disclosed by Stuart M. Crocker, president, Columbia Gas & Electric Co., New York, N. Y., in the company's annual report. The total represents an 18.5 percent increase over 1946.

During the past year the companies in the system completed 327 producing gas wells and 41 producing oil wells. Proven resources of gas in their territories were 1,913,000,000,000 cubic feet last December 31, while reserves based upon present Southwest contracts totaled 4,052,200,000 cubic feet. Construction of added underground storage facilities increased storage capacity to 47 billion cubic feet.

Magic Chef Releases 1948 Range Models

AMERICAN Stove Company's 1948 Magic Chef line consists of six basic models varied to meet practically any price or purpose.

Features include rounded corners and flowing contours, one-piece cook top, and such deluxe variations as automatic oven clock control, glass in oven door, chrome and pearl gray fixtures.

A sample of the "new look" in Magic Chef ranges

Wanted: The New Look in Accident Prevention

● A long established contribution to the gas industry is the series of messages entitled "Foreman's Reminders," which are generally posted on bulletin boards or reproduced on company letterheads.

These messages are a product of the American Gas Association's Accident Prevention Subcommittee on Foreman's Reminders, B. I. Johnson, Springfield Gas Light Co., 35 State Street, Springfield 2, Massachusetts.

The committee needs additional material and suggestions to continue the good work and solicits pen, pencil, typewritten notes or clippings. Contributions should be sent directly to Mr. Johnson.

N. Y. State Gives P. S. C. Further Powers Over Gas

GOVERNOR DEWEY of New York has signed the first of two bills advanced by the Public Service Commission to give that commission power to distribute gas supplies "more effectively" during periods of emergency.

The new law empowers the P.S.C. to enjoin gas manufacturers from supplying additional customers or from supplying gas to present customers for purposes prohibited by the commission.

Cold Wave Strains Gas Capacities

EFFECTS of the cold wave which blanketed large sections of the country early this winter are reflected in monthly sales of gas utilities to ultimate customers of 2,987,107,000 therms in December, an increase of 12.2 percent over a year earlier, an American Gas Association report discloses.

Sales of natural gas for the month were 2,608,912,000 therms, a gain of 13.1 percent, while manufactured gas sales rose the same degree percentage-wise to 233,368,000 therms. Mixed gas sales in December totaled 144,827,000 therms, a decline of 2.7 percent from last year. Areas served with mixed gas were favored with milder weather during the month.

Degree days in natural gas areas were 9.4 percent higher in December than in December 1946 and manufactured gas areas experienced 15.6 percent more degree days than in the like month of 1946. In mixed gas areas, however, degree days in December, 1947 were 1.5 percent lower than in the previous comparable month. Heating degree days measure the extent to which the mean daily temperature falls below an assumed base, usually 65 degrees Fahrenheit.

Total sales of utility gas on December 31, 1947 stood at 204.3 percent of the 1935-1939 average. Sales of natural gas were 207.3 percent of this average. Manufactured gas sales stood at 184.2 percent of the same average and sales of mixed gas were 189.5 percent of the 1935-1939 average.

On a twelve-month basis total sales of utility gas in 1947 amounted to 29,179,379,000 therms, an increase of 11.1 percent over the like months of 1946. Natural gas sales totaled 25,358,893,000 therms, up 11.4 percent and manufactured gas sales were 2,392,777,000 therms for the twelve months, a gain of 8.1 percent. Mixed gas sales totaled 1,427,709,000 therms, up 11.9 percent over the previous year.

Population Forecast Nearing Publication

A BASIC study, "Forecasts of the Population of the United States, 1945-1975," soon to be published by the Bureau of the Census, can now be ordered from the Superintendent of Documents, Washington 25, D. C., for delivery as soon as published. This basic study, of essential interest to anyone who has to work with future trends, can be obtained for 45 cents a copy.

The present edition, prepared by P. K. Whelpton, associate director, Scripps Foundation for Research in Population Problems, assisted by Hope Tisdale Eldridge and Jacob S. Siegel, Bureau of the Census, contains a greatly expanded chapter on "Implications of the expected trends in population growth and composition." Private utilities, public administration, manufacturing, marketing, employment, education, housing, conservation of natural resources, public health, and social security are among the fields affected.

Carrier Announces New Gas-Fired Unit Heater

CULMINATING years of research and development, a new gas-fired unit heater of modern design is announced by Carrier Corp., Syracuse, N. Y., manufacturer of air conditioning, refrigeration and industrial heating equipment.

Available in six sizes ranging from an input of 65,000 to 200,000 B.t.u. per hour, the new product line, known as Type 46 T, embodies all the latest features of forced air heating. The units will operate on either manufactured, natural or mixed gas.

Double action high temperature safety control prevents excessive metal temperatures and overheating, while adjustable louvres permit warm air to be directed to selected areas where controlled heat is desired either intermittently or continuously.

Completing program for twenty-third annual Southwestern Gas Measurement Short Course

Southwestern Gas Measurement Course

APPROXIMATELY 60 qualified persons have been selected to conduct a large number of diversified classes which will be held during the twenty-third annual Southwestern Gas Measurement Short Course at the University of Oklahoma, Norman, Okla., April 13-15.

C. E. Terrell, Southern Natural Gas Co., Birmingham, Ala., is chairman of the program committee. Local arrangements are being handled by Dean W. H. Carson, University of Oklahoma, and publicity and registration by Kate A. Niblack, Oklahoma Utilities Association, Oklahoma City.

Kansas First Lady, Cooks with Gas

Mary Louise Carl, home service department, The Gas Service Co., demonstrating features of Town and Country gas range to Mrs. Frank Carlson, First Lady of Kansas, at the governor's mansion

THE First Lady of Kansas is not to be out-done by Princess Elizabeth of England—at least not in the matter of a kitchen range—for Governor and Mrs. Frank Carlson recently selected a Roper Town and Country gas range for installation in the newly remodeled kitchen of the governor's mansion at Topeka.

Sale of the appliance was arranged by George D. Wells, new business manager, The Gas Service Co., at Topeka. Selling gas ranges to first ladies of Kansas is no novelty to Mr. Wells who sold a Roper to Mrs. Jonothon Davis in 1923, during Governor Davis' administration, and subsequently has sold every range to be installed in the Kansas governor's mansion.

A. G. A. Pays Tribute To Percy S. Young

THE Executive Board, American Gas Association, at its February 4 meeting unanimously passed a resolution paying tribute to the place of leadership and distinction occupied by Percy S. Young during 57 years of active service in the public utility industry. Mr. Young retired as chairman, executive committee, Public Service Corp. of New Jersey and Subsidiary companies, on December 19, 1947.

After citing his outstanding business career which started in 1890 with the Omaha Gas Co., the resolution records Mr. Young's extensive contributions to the gas industry through national association work. He served as president, National Commercial Gas Association in 1914, and represented that association on the committee which organized the American Gas Association in 1918. He was A. G. A. president in 1934, served on the Executive Board for 15 years, and for the past two years on the Advisory Council. He has served on approximately 30 committees covering a wide field of activity, and as chairman of many of those committees.

The results of Mr. Young's "many years of service will remain as a permanent memorial to his accomplishments," the resolution states. It concludes with the well wishes of the A. G. A. directors.

Houston Natural Men Hit Air Conditioning Jackpot

HOUSTON Natural Gas Corp., Houston, Texas, has made virtually a clean sweep of major honors in the nation-wide "Cash for Christmas" air conditioning sales competition sponsored by Servel Inc., Evansville, Indiana.

The Houston company consummated 194 air conditioning sales during 1947—more than any other utility company in the drive. This is believed to be the greatest number of units sold during the year by any utility company in the country.

L. L. Ladewig, head of Houston Natural's utilization department, reports that the company has participated in all phases of the Servel competition—early research, field testing, and more recently, aggressive promotional activity and sales endeavor.

Houston winners in the contest include: J. E. Means, who topped all competition in the application engineering division; L. R. Sunderland, who finished first in the closed sales division with J. W. Kuhne, a close second, and W. L. Amann sixth among the ten national winners; Harry Massey, Tri-Cities district manager, finished third in the prospect development division, W. M. Snyder finished ninth, and James C. Johnson, tenth in the group.

Cooper-Bessemer Expands

THE Cooper-Bessemer Corp., Mount Vernon, O., manufacturers of Diesels, gas engines and compressors, has embarked on a $600,000 improvement program in an effort to increase its production of equipment needed to help increase the supply of natural gas.

"GAS-MIZER"

(Continued from page 12)

question are simply asked to place one hand on the inlet piped to the reclaimer which is at a temperature of about 40 degrees in the winter, and the other hand on the outlet pipe which will average about 25 degrees higher. The difference in temperature felt by the prospect is roughly analogous to holding an ice cube in one hand and a pipe at room temperature in the other hand.

The "Gas-Mizer" reclaimer is being distributed by the National Combustion Co., 101 Park Ave., New York, N. Y. Manufacturers of gas-fired water heating equipment may purchase reclaimers directly from the manufacturer, The Alstrom Corp., 4184 Park Ave., Bronx, New York.

Convention Calendar

1948

MARCH

10-11 •A. G. A. Eastern Natural Gas Regional Sales Conference, William Penn Hotel, Pittsburgh, Pa.

11-12 •Oklahoma Utilities Association, Annual Convention, Biltmore Hotel, Oklahoma City, Okla.

18-19 •New England Gas Association, Annual Meeting, Hotel Statler, Boston.

24 •Southern Gas Association Home Service Workshop, Galveston, Texas

24-25 •Pacific Coast Gas Association Home Service Workshop, Fairmont Hotel, San Francisco, Calif.

24-26 •Southern Gas Association, Annual Meeting, Galveston, Texas

APRIL

Mar. 30-Apr. 1 •A. G. A. Residential Gas Section, Mid-West Regional Gas Sales Conference, Edgewater Beach Hotel, Chicago, Ill.

5-7 •G.A.M.A. Annual Meeting, Drake Hotel, Chicago, Ill.

7-9 •A. G. A. Sales Conference, Industrial & Commercial Gas Section, Windsor, Canada

8-10 •Gas Meters Association of Florida-Georgia, Hollywood Beach Hotel, Hollywood, Fla.

8-10 •Mid-West Gas Association, Annual Meeting, Nicollet Hotel, Minneapolis, Minn.

12-14 •Joint A.G.A.-E.E.I. National Conference of Electric and Gas Utility Accountants, Hotel Jefferson, St. Louis, Mo.

13-15 •Southwestern Gas Measurement Short Course, The University of Oklahoma, Norman, Okla.

14-17 •National Restaurant Association Show, Cleveland Auditorium (A. G. A. will exhibit)

19-21 •A. G. A. Distribution, Motor Vehicle and Corrosion Conference, Hotel William Penn, Pittsburgh, Pa.

20 •New Jersey Gas Association Home Service Workshop, Newark, N. J.

22-23 •Indiana Gas Association Convention, French Lick Springs Hotel, French Lick, Ind.

28-30 •Missouri Association of Public Utilities, Hotel Jefferson, St. Louis

MAY

4-5 •A. G. A. Natural Gas Department, Rice Hotel, Houston, Texas

18-20 •Pennsylvania Gas Association, Annual Meeting, Galen Hall, Wernersville, Pa.

24-25 •A. G. A. New York-New Jersey Regional Gas Sales Conference, Westchester Country Club, Rye, N.Y.

24-26 •A. G. A. Production and Chemical Conference, Berkeley-Carteret Hotel, Asbury Park, N. J.

27-28 •Natural Gas and Petroleum Association of Canada, General Brock Hotel, Niagara Falls, Ontario

JULY

June 30-July 3 •Canadian Gas Association, Annual Convention, Jasper Park Lodge, Jasper, Alberta.

ACCOUNTING SECTION

JOHN A. WILLIAMS, Chairman | L. E. REYNOLDS, Vice-Chairman | WALTER E. CAINE, Secretary

Spring Conference Plans Previewed

By LER

Edw. Hopkinson, Jr.

UPON completion of a three-day joint meeting early in February of the accounting committees of the American Gas Association and Edison Electric Institute, Co-Chairman John A. Williams, Niagara Hudson Power Corp., Syracuse, N. Y., and H. B. Hardwick, Commonwealth & Southern Corp., New York and Consumers Power Co., Jackson, Mich., enthusiastically endorsed the plans which their committees had drawn up for the spring accounting conference at the Jefferson Hotel in St. Louis, Missouri, April 12-14.

M. R. Gainsbrugh

Highlighting the program is the general session starting at two o'clock on Monday afternoon, for which a well-rounded and interesting program has been developed. The accountants feel that they are fortunate in securing Edward Hopkinson, Jr., Drexel and Co., Philadelphia, to deliver a talk on "Utility Financing in Tomorrow's Money Market."

One of the country's leading financial experts, Mr. Hopkinson is at present a member of President Truman's Advisory Committee on the Conduct and Financing of U. S. Foreign Trade. He is a past-president, Investment Bankers Association of America; a director and vice-president, Pennsylvania State Chamber of Commerce; and at various times has served as a director, Public Service Corp. of New Jersey, United Gas Improvement Co., Philadelphia Electric Co., and numerous other firms.

He was a partner in J. P. Morgan & Co., 1929-1940, when the Morgan firm incorporated as a New York bank and trust company and the successor firm of Drexell & Company continued the Philadelphia investment banking business.

Martin R. Gainsbrugh, chief economist, National Industrial Conference Board, New York, since 1939 and a well-known author in the economics field, will speak at the general sessions on "The Economics of Our Way of Life."

Mr. Gainsbrugh served as economic analyst with Trade-Ways, industrial consultants, before joining the National Industrial Conference Board. He is currently a director of the board's division of economics.

He is a member, Business Advisory Committee, Council of Economic Advisors; Business Advisory Committee, Bureau of Labor Statistics; Advisory Committee on Economic Statistics, Bureau of the Census; Executive Committee, Productivity Conference; Executive Committee, Conference on Research in Income and Wealth.

He is also a member, American Economic Association and American Statistical Association.

R. W. Otto, president, The Laclede Gas Light Co., St. Louis, Mo., will officially open the conference with a short address of welcome. Mr. Otto has offered to all those interested, tours of inspection of the accounting department and storeroom of his company, which will act as a joint host for the conference.

The Program Committee has secured the services of Alfred Fleishman, customer relations counsellor for Union Electric Co. of Missouri, also a host company, who will speak at the general session Monday afternoon on "The Importance of Customer Relations in the Future of the Industry." Mr. Fleishman is well-known to utility executives and the subject he has selected is of utmost importance to all utility managements.

The pattern for the spring conference will be the same as that which proved so successful in previous years. On Tuesday morning, the group will divide into two parallel sessions. The first of these will be General Activities, at which A. A. Cullman, Columbia Engineering Co., New York, and O. K. Boyd, Consolidated Gas, Electric Light & Power Co. of Baltimore, will preside.

Subjects and speakers for this session have been suggested by the various General Activities Committees, and those attending the spring conference, particularly those interested in the general accounting phase of the industry, will find an enlightening and educational program which will repay them well for the time spent at this session.

Parallel Sessions

The other session to be held on Tuesday morning is the Customer Activities group, which will be handled by Arthur Fyfe, Consolidated Edison Co. of New York, Inc., and Glenn Ray, Indianapolis Power and Light Company. Mr. Fyfe and Mr. Ray, together with the chairman of the individual committees making up the Customer Activities group, have left no stone unturned to provide a program which will be outstanding from the standpoint of customer activities.

Both groups have arranged for luncheon meetings Tuesday noon. The general activities luncheon will have for discussion the informative report of the Accounting Employees Relations Committee, co-chairmen of which are E. R. Eberle, Public Service Electric and Gas Co., N. J., and J. E. King, Consolidated Edison Co. of New York, Inc. This committee, which reached the status this last year of a stand-

(Continued on page 29)

Approvals—by Management

The following article, written especially for the MONTHLY, is based on a study recently undertaken by the Systems Accounting Department, Columbia Engineering Corp., the subsidiary service company for the Columbia Gas & Electric Corporation System. Some of the material is quoted directly from the report on that study.

BY ALAN A. CULLMAN

Assistant Treasurer
Columbia Engineering Corp.
New York, N. Y.

Alan A. Cullman

IN the conduct of a business of major scope and size, it is necessary for management to delegate responsibility for the carrying out of company policy in the operation of the business and in the safeguarding of the assets used in those operations. As businesses have grown, this delegation of authority has gradually carried the approval of detailed transactions further from the operating head.

That adequate scrutiny by responsible authority of all transactions is indispensable is well recognized, and the danger of inadequate controls is demonstrated, from time to time, by newspaper reports of major defalcations, where loose approval practices had been allowed to creep in.

However, unless the upper ranks of management delegate the approval authority that follows responsibility, overburdening of these executives with paper work results to the detriment of other important responsibilities.

It is important that a balance be achieved in this relationship to the end that approval requirements may be established which are adequate to assure financial and operating control and safety, yet are consistent with the importance of minimizing the paper work of the several levels of authority within a company.

This attempt at balance is a time-worn problem and one that periodically has occupied the attention of management over the years. From time to time organizations revise routines to bring about a semblance of consistency in approval porcedures. Yet, as further changes occur in personnel and in accounting and operating routines, lack of balance may again develop into inadequate safeguards on the one hand or a build-up of paper work on the other.

A recent study on the subject of approval practices included an attempt to find previous written matter dealing with the problem. Apparently little, if anything, has been published, since only references to matters which should be presented to a board of directors for approval were found and nothing for the myriad of transactions which, in the aggregate, constitute routine operations.

A review was also made of the approval practices of several large companies. These companies are of such size, and the activities so manifold, that transactions range from matters of major policy and procedure to the carrying out of parts or details of ordinary operating routine.

As to matters of major policy, considerable uniformity was found in the use of broad measures of control which inform the board of directors and executive management of the current affairs of the company. These include operating and construction budgets, reports on operating and financial conditions, and integrated systems of internal checks and audits.

However, some lack of uniformity was found in the importance attached to comparable operating transactions, as measured by the rank of the executive approval required for each, types of transaction of approximately equal importance not, in all cases, being subject to the same level of treatment.

It is believed a long-range program which will help to prevent the development of such misalignments and to correct those currently existing can be achieved through the establishment of a rating plan along the lines of that outlined below. Such a plan must necessarily be custom-made to fit the organizational set up of the company for which it is designed, although the steps in the development of the plan can be uniformly applied.

Levels of Authority

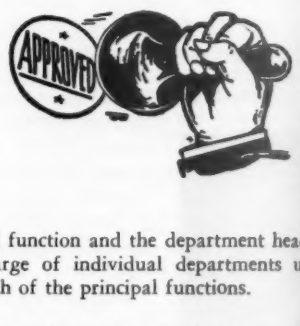
The initial step is a delineation, in broad classes, of the several levels of authority within the company, without regard to the titles by which these particular classes may be designated.

Stated another way, there are a certain number of management levels between the board of directors and the lowest level supervision. Assuming that the board directors is labeled Level 6, then Level might be the president, Level 4 the vi president and general manager and so down to Level 1, which would inclu those supervisory employees, such as fo men or local managers, who have dir supervision of non-supervisory employe

The number of approval levels requir will vary with the organization of t company but should be kept at a min mum and should not be cluttered up attempting to recognize slight differenc in rank.

Second part of this initial step is t preparation of an organizational chart f the company, showing the general class of positions includible under each a proval level.

This requires functionalizing and char ing the major functional activities of th company; also the designation of the of cer or executive in charge of each princ



pal function and the department heads in charge of individual departments under each of the principal functions.

Second major part of the job is the preparation of a summary, in broad classes, of the several types of operating transactions requiring approval. Although there are many variations of the major classes of transactions, these generally fall into broad general classes such as construction budgets and work orders, operating budgets, wage changes, personnel additions and terminations, purchases, contracts, dues, donations and contributions, accounts payable invoices, etc.

This part of the job also requires the establishment of rules or standards of company policy, preferably in manual form, for the instruction and guidance of department managers and supervisors. Such rules or standards should establish company policy with respect to recurring items, such as purchasing, lost time, leave of absence, work order requests, etc., and should define the limits within which de-

partment managers or supervisors may operate without necessity for higher approval. Unusual items or transactions which are in excess of standard must, of course, receive higher approval.

There may be several types of transactions in each of the broad classes, resulting from different origins and routines and the operations of the various departments, but such variations need not be considered in the assigning of approval level requirements to the broad classes of transactions. For example, if Level 2 were designated as the minimum required approval for field payroll transmittals, the appropriate Level 2 approval would apply irrespective of the department for which the payroll was prepared or the titles of the positions through which the payroll passed on its way for payment.

Third major step in the process is the study of the movement of each type of document, the determination of its place in the previously adopted approval plan, and the rearrangement of its flow to accord with the over-all plan. Many organizations have already prepared flow charts of transaction movements. If these already exist, they should prove helpful in this step. If they do not exist, it may be found worthwhile to develop such charts, not only from the standpoint of their value in the immediate study, but for their use generally in eliminating unnecessary operations and improving general efficiency.

Process Charts

If process charts are developed, they should be prepared for each functional activity (work orders, payrolls, etc.) showing the successive steps involved from the origin of the transaction to its final consummation or payment. Such charts should present the origin, flow and approvals required for the transaction, both from the standpoint of operations and of Treasury Department audit and controls.

When this review has been completed, the movement of documents to levels higher than approved levels will become readily apparent and the unnecessary overloading of higher echelons with approval paper work can be corrected. Also, where it is discovered that certain transactions are not receiving adequate approval, correction may be made.

It is emphasized at this point that approval levels developed by such a plan are minimum levels and would apply to normal transactions of the particular class. Occasions will arise where transactions falling into such class are out of the ordinary. It is to be expected that each level of authority would acquaint the next higher level of the circumstances of such cases and secure approval of that level if this is deemed advisable.

Occasions may also arise, such as the breaking-in-period of a new executive, where higher requirements may be set for temporary periods. It is stressed, however, that once the minimum requirement for safety is agreed upon, it would appear undesirable to permit final approvals by grades lower than the agreed minimums.

It follows that prior approval of transactions by subordinate authority would be required. The level or levels of subordinate authority by which each of the transactions would be approved prior to final approval will necessarily depend upon the level originating or supervising the transaction.

It is probable, in the interest of speed of work transmittal, that delegation of certain approval authorities may be permitted, such as approval of time sheets by a chief clerk signing for his superior. Such delegations, however, should not relieve the superior of his responsibility, but should apply only to routine matters and not to matters of individual importance, and the work of the subordinate should be reviewed by the superior from time to time.

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SPRING CONFERENCE

(Continued from page 27)

ing committee, has prepared its report along lines which should create a great deal of constructive discussion. While a general report will be made at the general session by Mr. King on Monday afternoon, all phases of this report will be brought out at the general activities luncheon on Tuesday.

The Customer Activities group will split into three luncheon meetings: the Customer Accounting Committee, Credit and Collections Committee, and Customer Relations Committee. All three committees have done an admirable job and company representatives interested in customer accounting who attend the spring conference will certainly have difficulty in determining which luncheon session to attend. The Customer Activities group have always selected timely topics for discussion and the 1948 conference will be no exception.

Tuesday afternoon and Wednesday morning will be devoted to individual committee meetings by both groups. At these meetings, as anyone knows who has attended in the past, the discussion is lively and everyone gets down to real cases. So, if you like to discuss customer relations, property records, general accounting, credits and collections, choose your own session and come prepared to enter into and listen to "the best way to do it."

At this point, let's not forget the Tax Committee, Frank Freer, Jr., Public Service Electric and Gas Co., and H. S. Howard, Niagara Hudson Power Corp., co-chairmen. There was a time, not too far removed, when only a few tax experts gathered for a round-table discussion of their mutual problems. Times have changed, however, and the industry's tax accountants are realizing more and more the value of these tax meetings. This group just completed a three-day session at Cincinnati attended by approximately 40 tax men, who discussed a prepared agenda. There isn't any question that the program which is being prepared for the St. Louis conference will draw close to a hundred.

The committee is to be congratulated upon securing talented Judge James Wesley McAfee of St. Louis—a leader in the public utility field, who heads the Union Electric Co. of Missouri and its subsidiaries, Union Electric Power Co. and Union Colliery Company.

His broad interests include the utilities, law, finance, education, civic enterprise, and philanthropy. He takes active part in the betterment programs of his city and state. A member of American, Missouri, and St. Louis bar associations, he continues his contacts with bench and bar, having served as judge of the Circuit Court. His company long has taken constructive interest in the history of St. Louis, its growth, development, and influence. Judge McAfee consistently has encouraged that interest.

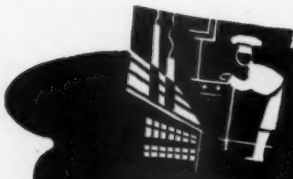
General

All in all it looks like a well-rounded program. Company representatives are urged to make their reservations, if they have not already done so, and to try to arrive in St. Louis on Sunday.

A very fine machine and office equipment exhibit has been arranged by the Machine Exhibits Committee consisting of L. E. Reynolds, The Connecticut Light and Power Co.; Philip H. Gadsden, Jr., Philadelphia Electric Co.; and Walter E. Caine, American Gas Association.

In addition, arrangements are being made to enable those arriving on Sunday to attend a radio broadcast at 5.00 p.m.

On paper and from all we have been able to find out, this spring conference appears to be "a must" for all electric and gas utility executives and accountants.



INDUSTRIAL & COMMERCIAL GAS SECTION

LEON OURUSOFF, Chairman | BERNARD T. FRANCK, Vice-Chairman | MAHLON A. COMBS, Secretary

Vital Issues Scheduled for Windsor

A BROAD preview of subjects to be presented at the Section's Sales Conference on Industrial and Commercial Gas in Windsor, Ontario, April 7-9, is afforded in an announcement by Leon Ourusoff, Washington Gas Light Co., Washington, D. C., Section chairman. Harry A. Sutton, Public Service Electric & Gas Co., Newark, N. J., is chairman of the Program and Papers Committee for the conference.

Among the important papers to be presented on Industrial Gas Day will be a report by George A. Uhlmeyer, manager, industrial sales department, Iowa-Illinois Gas & Electric Co., Rock Island, Ill., on the industrial gas research project "The Investigation of Induction Heating in Relation to Industrial Gas Heating."

Some gas engineers go so far as to believe that the advancement made in the application of induction heating has been so substantial that it may represent a real threat to industrial gas business. At present, there appear to be no technological factors which would seriously impair the ability of gas heating equipment to capture its full share of the potential market, provided that the advances in gas equipment applications continue to keep ahead of those in induction heating.

Other Features

Supplementing the presentation of Mr. Uhlmeyer's paper, there will be a discussion of this subject by D. W. Chapman, manager, industrial sales, The Peoples Gas Light & Coke Co., Chicago, Ill., a member of the Committee on Industrial and Commercial Gas Research, and co-sponsor with Mr. Uhlmeyer of this research project; and S. L. Case, Battelle Memorial Institute, Columbus, Ohio. This research project was conducted at Battelle under the general sponsorship of the above committee, Ralph L. Manier, chairman.

Another important presentation will be on "Paint Drying." The "how and why" will be presented by Paul O. Blackmore, director, products engineering, InterChemical Corp., New York, who is the author of several technical books on this subject. The best known of these among gas men is "A Film is Born," which was distributed with a recent Information Letter. The subject of equipment for paint drying will be covered by H. R. Clauser, associate editor, *Materials and Methods*, New York, who has written a number of articles on this related subject.

For those interested in food processing, Herman Gehnrich, Jr., Gehnrich & Gehnrich, Woodside, N. Y., will present one phase of this industry with a talk on "Modern Air-Conditioned Smoke Houses," which eventually will be the subject matter of an Information Letter produced by the Industrial Processing Committee.

An important subject about which not very much is known is "Sintering of Powdered Metals," to be discussed by a consultant in this field, Robert Talmage, Silvermine, Norwalk, Conn. Mr. Talmage will show industrial gas men how this processing can be done by present standard gas furnaces.

A general session on the second day of the conference will be slanted to interest both industrial and commercial gas men. On this day, Thursday, April 8, the formal luncheon will be held, at which a prominent Canadian will be the guest speaker.

At the conclusion of the afternoon session, delegates to the conference are invited to the Gas Appliance Manufacturers Association's Friendship Room, after which there will be a "speakerless" dinner. The host company, Union Gas Co. of Canada, Ltd., will provide the entertainment.

Highlighting the sessions Thursday, several well-known speakers will present topics of interest to all the delegates.

The National Sanitation Foundation is actively engaged in promoting restaurant sanitation and their program is such that there should be a marked improvement in conditions all over the country. They can appeal to health authorities everywhere and with the aid of allied industries can establish codes that would be effective and have the full cooperation of all. What this organization is doing and plans to do will be told by Walter F. Snyder, executive director, National Sanitation Foundation, Ann Arbor, Michigan.

A subject that is giving concern to many gas companies is competition from competitive fuels. Robert E. Ginna, vice-president, Rochester Gas & Electric Corp., Rochester, N. Y., will discuss this problem in his paper "The Electric Industry's Designs on the Industrial and Commercial Market—What Shall Be the Gas Industry's Answer?"

Commercial Gas Day

Commercial Gas Day on Friday will have many speakers on important subjects in this field. One of the most interesting will be "Water Heating in Self-Service Laundries" by Harry B. Wilson, Commercial Gas Manager, The Brooklyn Union Gas Co., Brooklyn, N. Y., who is expected to discuss his heat reclaimer,* which it is claimed saves up to 30 percent of fuel cost. This is a rapidly growing field for gas, and a profitable load.

The importance of restaurant sanitation cannot be disputed. It really centers around the dishwashing equipment, and an informative talk on how to set up a sales proposal and size the necessary heating elements will be discussed in a paper "Water Heating in Restaurants with Particular Emphasis on 180° Water for Dishwashing" by L. J. Fretwell, commercial service engineer, Oklahoma Natural Gas Company, Tulsa.

Closing the conference session will be a forum on one of the most important subjects confronting gas companies today. The title of this forum is "The Type of Appliance Servicing to Safeguard the Commercial Cooking Load." It will be

* Described on page 12 of this issue of the MONTHLY.

conducted by R. D. MacMahon, Southern California Gas Co., Los Angeles, Calif.; D. J. Brogan, The G. S. Blodgett Co., Burlington, Vt., and Ray G. Juergens, The East Ohio Gas Co., Cleveland, Ohio. Walter S. Anderson, Boston Consolidated Gas Co., will act as moderator.

Gas company men planning to attend the A. G. Sales Conference on Industrial and Commercial Gas, can make hotel reservations from a block of rooms which has already been reserved, by writing direct to:

Reservations Committee
A. G. A. Sales Conference April 7-9
Prince Edward Hotel
Windsor, Ontario, Canada.

Be sure to state time of arrival and time of departure.

Industrial and Commercial Campaign Reviewed

A. G. A. Industrial and Commercial Gas Advertising Committee in New York, February 6: (l. to r.) Walter S. Anderson, Boston Consolidated Gas Co.; Mahlon A. Combs, secretary, A. G. A. Industrial & Commercial Gas Section; F. T. Brooks, Philadelphia Electric Co.; J. P. Leinroth, Public Service Electric & Gas Co., chairman; C. W. Person, A. G. A. director of advertising, secretary; Albert C. Evans, account executive, Emil Hofsoos, C. E. Livingston, all Ketchum, Mac Leod & Grove agency. Several other members were prevented from attending the meeting by severe weather

First Commercial Cooking Film Started

BY JOHN J. BOURKE

Director, Commercial Gas Cooking Promotion, American Gas Association New York, N. Y.

IT is November 1946. The occasion is the meeting of the Food Service Equipment Committee, Walter S. Anderson, Boston Consolidated Gas Co., chairman. The question is—Where can we spend the commercial promotion dollar so that it will yield the greatest return?

The scene changes. It is April 1947. The occasion is another meeting of the same committee. The answer—Make a moving picture!

Why a moving picture? During the interval between November and April the Food Service Equipment Committee's Subcommittee on Sales Promotion, headed by its able chairman, Edward V. Fineran, Washington Gas Light Co., Washington, D. C., made a study of the various promotional media which might be used to promote gas for commercial cooking.

"Should we employ a well-known chef to go from gas company to gas company giving cooking demonstrations to audiences of volume cooking operators?" they asked. "Should we make a sound-slide film on commercial cooking? Should we conduct a coordinated national commercial cooking equipment replacement plan?"

These ideas were all considered along with many others which had merit. After much deliberation it was unanimously agreed that a moving picture would be the best vehicle through which the gas story could be brought to the volume cooking industry. Here are some of the reasons which motivated that decision:

A movie can be used over and over again by both large and small companies and will reach the greatest number of customers at the lowest unit cost. A movie is an effective type of promotion.

The old Chinese proverb tells us "one picture is worth a thousand words." A movie must be worth millions.

Educators contend that audio-visual presentation is the most effective teaching technique known. A film guarantees a uniform presentation of the message. These are a few of the reasons which made it apparent that a movie film could do more to build better customer relations and promote gas for commercial cooking than any other idea conceived.

Again the scene changes. It is February 1948 this time. The proposal for the film has gone through five committees. The idea has been approved by all concerned, funds have been appropriated, the script has been written and approved, the producer has been selected, and the way is clear to begin production.

Every gas company in the American Gas Association had been invited to submit opinions as to points which should be brought out in the picture. This raw material—the opinions of an industry—was woven by the script writer into a highly entertaining story. The final product is a 16 mm two-reeler which will run about 20 minutes, using full color and sound.

Entertainment

No documentary film, our movie has a strong entertainment ingredient and at the same time is educational in content. An ever-so-subtle promotional flavor is added for balance. The movie thus meets the basic objective of promoting gas for commercial cooking by showing the best practices for preparing food on modern gas-fired equipment, and at the same time informs existing and potential commercial cooking customers of the latest features of gas equipment by showing that equipment in actual operation.

There are two primary audiences to which the film can be shown—associations of allied industries, and schools teaching volume cooking. The associations include hotel, restaurant, dietetic, club managers, hospital administrators, stewards, caterers, chefs and cooks. The schools include those teaching hotel or restaurant administration, institution management, dietetics, and vocational schools for chefs.

Secondary audiences include the cooking personnel of large volume feeding organizations such as industrial catering organizations, chain operators (hotel, drug, variety, restaurant, etc.) and large independent operations. Other audiences are food service equipment dealers and gas company sales and service personnel.

Present plans call for making the film available on loan to member gas companies without charge. An agency will handle the distribution and the cost of projection will be the only expense to the gas company.

By this time you are probably thinking, "Sounds wonderful, but when can I get it?'

The answer is—It won't be long. Probably about the middle of May.

Industrial Processing Subcommittees Formed

THERE has been a long-felt need in the Industrial and Commercial Gas Section for the consideration of industrial gas applications outside the ferrous and non-ferrous fields. The Industrial Processing Committee which was formed under the chairmanship of Carl Lekberg, Northern Indiana Public Service Co., Hammond, Ind., to meet this need held its first meeting in January.

Subcommittees and subcommittee chairmen were appointed and it was decided that the five most important industrial applications are ceramics, food processing, metal finishing, printing, and textiles.

It was decided that the most practical method of disseminating findings of the subcommittees would be to have each produce Information Letters in their respective fields. The first of these letters are to be ready for review by the committee as a whole during the American Gas Association's Sales Conference on Industrial and Commercial Gas at Windsor, Ontario, April 7-9.

For the Subcommittee on Ceramics, Harvey C. Weller, Surface Combustion Corp., Toledo, O., chairman, it was proposed to develop an Information Letter on standby equipment for industrial plants. It was decided that information on standby equipment should be given by the gas company industrial representative to his customers to keep the industrial consumer looking to the industrial gas representative as the consultant on fuels, and in this way, get the best information available, protect the industrial gas load, and in no sense to sell competitive fuel.

Chairman Kenneth I. Robinson, Public Service Electric & Gas Co., Newark, N. J., and his Subcommittee on Food Processing were charged with the production of an Information Letter on Air-Conditioned Smoke Houses.

Metal finishing has long been a subject of considerable controversy, especially for white finishes. It was thought that an Information Letter setting forth case histories and recommendations on oven types for white finishes from a quality viewpoint would have wide acceptance among industrial gas men who may have customers or prospects for this type of work in their territories. C. George Segeler, A. G. A. utilization engineer, is chairman of the Subcommittee on Metal Finishing.

With the advent of a situation in the printing industry in respect to production costs, there is a definite trend toward higher press speeds with a consequent drying problem. Several printing press manufacturers of flat bed, rotary, lithograph, and offset processes specify gas drying equipment as a part of their installations. When such speeds as 9,000 impressions an hour have to be met, there is an engineering problem to put gas heat where it will be most effective and in the proper quantity. The first Information Letter on this subject will be prepared by the Subcommittee on Printing, Thomas Watson, The Philadelphia Gas Works Co., Philadelphia, Pa., chairman.

E. V. K. Schutt, Central Hudson Gas & Electric Corp., Newburgh, N. Y., chairman, Subcommittee on Textiles, stated that there were almost unlimited opportunities for the application of gas in the textile industry by citing his company's sales of 45 million cubic feet annually to eight plants in his territory. As there are some 6,000 textile plants in the country, this field opens a tremendous opportunity for the sale of gas.

The same condition as in printing exists in the textile industry—higher speeds are desired.

Midwest Industrial Gas Council

Lunching at the Industrial Gas Council: H. F. Rehfeldt, The Peoples Gas Light & Coke Company, Chicago; E. L. MacLennan and W. Pellaur, representing Sellers Engineering Company, Chicago; P. W. Hay, Public Service Company of Northern Illinois, Blue Island, Ill.; N. R. Gorsuch, Citizens Gas & Coke Utility, Indianapolis, Ind.; Vance Uhlmeyer, Iowa-Illinois Gas & Electric Company, Moline, Ill.; Don R. Groff, Northern Indiana Public Service Company, Hammond, Ind., new chairman, and Paul F. Gibson, Western United Gas & Electric Company, Aurora, Ill., secretary-treasurer

A BLINDING snowstorm had little or no effect on the attendance of industrial gas engineers at the Hotel Stevens, Chicago, January 23, for the annual meeting of the Midwest Industrial Gas Council. Coming in from all sections of the Middle West, members jam-packed the ballroom for the full-day session.

Norbert Koebel, director of research, Lindberg Engineering Co., Chicago, opened the morning session with a technical talk on "Furnace Atmospheres from Endothermic Cracking of Gas." He was followed by D. H. Stiles, representing The Factory Mutuals, Chicago, who spoke on "How an Insurance Company Regards Gas-Fired Equipment."

First order of business after luncheon was an election of the following officers for the coming year: chairman, Donald R. Groff, Northern Indiana Public Service Co., Hammond, Ind.; vice-chairman, Bert H. Roberts, Minneapolis Gas Light Co., Minneapolis, Minn.; secretary-treasurer, Paul F. Gibson, Western United Gas & Electric Co., Aurora, Illinois.

The afternoon meeting was high-lighted by a two-part talk on "Obnoxious Odors," by R. A. Hastings, vice-president, Continental Industrial Engineers, Inc., and Carl F. Peterson, representing the Mid-Continent Metal Products Co., both of Chicago. Mr. Peterson's talk was based on an article in the January issue of *Industrial Gas* telling how a large Chicago printing plant solved the smoke problem. H. H. Feirabend, Northern Indiana Public Service Co., Gary, Ind., closed the meeting with an enlightening paper on "The Application of Gas in Connection with Steel Mill Operations."

Section Ready for Restaurant Show

COMMERCIAL gas representatives, manufacturers of heavy duty gas-fired cooking equipment, and equipment dealers are looking forward to the coming National Restaurant Exposition in the Public Auditorium, Cleveland, April 14-17.

Largest single display in the show will be the joint exhibit sponsored by the Industrial and Commercial Gas Section, American Gas Association, with 22 manufacturers showing their latest models. One complete side of the auditorium will be occupied by the Commercial Gas Cooking Center with an aisle frontage of nearly 400 feet. During the period of the Exposition, the Section will hold meetings of committees identified with the commercial cooking field.

A. G. A. to Exhibit In Foundry Show

THE Industrial and Commercial Gas Section will sponsor an exhibit at the fifty-second annual convention and foundry show of the American Foundrymen's Association, May 3-7, in the Convention Hall, Philadelphia. This is the first time the American Gas

(Continued on page 42)

RESIDENTIAL GAS SECTION

C. S. STACKPOLE, Chairman | W. M. JACOBS, Vice-Chairman | F. W. WILLIAMS, Secretary

Gas Salesmen Head for Pittsburgh

I. K. Peck

AN informative program packed with ideas and suggestions to help the gas industry prepare now to fight for existing and potential business, has been organized for the Residential Gas Section's Eastern Natural Gas Regional Sales Conference at the Hotel William Penn, Pittsburgh, Pa., March 10 and 11.

Irving K. Peck, vice-president, Manufacturers Light & Heat Co., Pittsburgh, as chairman of the Sales Council, reports that the conference should provide a veritable gold mine of opportunities.

Raymond Little

Following greetings by Mr. Peck, the opening speaker on the first day will be H. Carl Wolf, managing director, American Gas Association, who will keynote the meeting with an address entitled "It's Time to Get Ready to Sell Again."

He will be followed on the program by W. D. Williams, assistant to sales manager, Public Service Electric & Gas Co., Newark, N. J., a leading expert in the field who as chairman, A. G. A. Water Heating Committee, is well-qualified to expound the subject "Glamorizing the Automatic Gas Water Heater."

Important factors in the public's attitude toward business in general and the utilities in particular will be discussed by Joseph C. Bevis, vice-president, Opinion Research Corp., Princeton, N. J., in a talk, "Shifting Public Attitudes and What They Mean to Business." Mr. Bevis has spent the last eight years with Opinion Research specializing in utility research.

An interesting schedule of events has been planned for the afternoon session which will be presided over by George L. Scofield, assistant to manager, Republic Light, Heat & Power Co., Buffalo, N. Y.

Harold E. Jalass, general sales manager, Cribben & Sexton Co., Chicago, Ill., who is very active in the affairs of the Domestic Gas Range Division, Gas Appliance Manufacturers Association, a member of the A. G. A. Domestic Range Committee, and a strong supporter of the "CP" Range Program, will give an address called "Who's Kidding Who?"

A presentation, "Sleeves Up for Action in '48," is expected to provide one of the "hits" of the conference. R. J. Canniff, advertising and sales promotion manager, Servel Inc., Evansville, Ind., will be assisted in this event by P. R. Kennedy, J. Hewson, P. A. Brown, and M. Carnes, of the same company.

Irene L. Muntz, home service director, Rochester Gas and Electric Corp., Rochester, N. Y., a leader in home service work for many years, has chosen as her subject on the afternoon's program "The New Look in Home Service."

A unique presentation entitled "Increasing Sales Effectiveness" will feature James H. Davis, assistant professor, business organization, E. R. Bagley, D. W. English, and J. T. Bonner, all of the business organization department, Ohio State University.

On Thursday Raymond Little, sales manager, Equitable Gas Co., and vice-chairman of the Sales Council, will be the presiding officer. B. A. Seiple, president, Jersey Central Appliance Co., Asbury Park, N. J., will treat the subject, "Deal in the Dealer," backed up by experience "on both sides of the fence," as a gas man and more currently as a dealer.

Sales methods and techniques used by The Ohio Fuel Gas Co., Columbus, O., will be described by R. J. Miller, appliance sales manager, in a talk, "New Opportunities of Increasing the Base Load."

W. J. Pierce, merchandising manager, Northwestern Drug Co., Minneapolis, Minn., will deliver an important message on the subject "Merchandising Shortcomings—1947 Variety." He has had a wide experience in practical merchandising and a distinguished career as author, editor, publicist and merchandise counsellor.

Following a conference luncheon, H. Leigh Whitelaw, G. A. M. A. managing director, will preside as chairman of the afternoon session. "Residential Housing Today and Tomorrow" is the subject selected by Rodney M. Lockwood, vice-president, National Association of Home Builders of the U. S., Detroit, Mich., a recognized authority in this field.

C. S. Stackpole, manager, merchandising and domestic sales, Consolidated Gas Electric Light & Power Co. of Baltimore, and chairman, A. G. A. Residential Gas Section, will explore a new and important phase of the New Freedom Gas Kitchen Program. He is the past-chairman of the Association's New Freedom Gas Kitchen Committee and is thoroughly conversant with the latest happenings on the subject.

His talk is expected to provide a powerful wind-up to a fast-moving and useful program.

Salesmanship

● The gentleman's attitude was polite but firm. "I'm sorry," he told the young woman who was selling tickets for the charity concert, "but I won't be able to attend the concert. It's for a most worthy cause, however, and I assure you I shall be with you in the spirit."

"Fine," exclaimed the young woman. "Now where would you like to have your spirit sit? The tickets are one dollar and two dollars."

The gentleman meekly replied: "I'll take a two dollar one, please."

TECHNICAL SECTION

A. C. CHERRY, Chairman | S. J. MODZIKOWSKI, Vice-Chairman | A. GORDON KING, Secretary

Distribution Meeting Expanded

H. W. Nicolson (left) and W. R. Fraser, chairmen, A. G. A. Distribution and Corrosion Committees

SOMETHING new will be added to the Technical Section's annual Distribution and Motor Vehicle Conference this year at the Hotel William Penn, Pittsburgh, Pa., April 19-21. A third group, the recently created Committee on Corrosion, W. R. Fraser, Michigan Consolidated Gas Co., chairman, will participate in the conference as one of the main committees of the Technical Section.

A program which has been organized to provide maximum interest for manufactured, natural and mixed gas men will open Monday, April 19, with greetings from H. W. Nicolson, Public Service Electric & Gas Co., Newark, N. J., chairman, Distribution Committee.

General Sessions

D. P. Hartson, vice-president and general manager, Equitable Gas Co., is expected to welcome the group to Pittsburgh at the opening general session Monday morning, followed by a talk by Hudson W. Reed, president, American Gas Association and The Philadelphia Gas Works Company. A message from the Association is scheduled to be given by H. Carl Wolf, A. G. A. managing director.

Professor Amos E. Neyhart, administrative head, Institute of Public Safety, The Pennsylvania State College, State College, Pa., will cover the subject of driver selection and training.

Dr. Neyhart is noted for having presented the first high school course in driver education and training in the United States for beginning drivers in 1933.

The speaker is at present consultant on road training, American Automobile Association, Washington, D. C., and has actively assisted in the training of more than 4,000 driver training instructors in courses of varying types in nearly every state.

Among other speakers scheduled to appear at the general sessions are Donald J. Miller, Public Service Co. of Colorado, Denver, Colo.; C. S. Hazel, The Philadelphia Gas Works Co.; James E. C. Currens, Pacific Gas & Electric Co., Sacramento, Calif.; V. F. Bittner, The Peoples Gas Light & Coke Co., Chicago, Ill.; A. H. Cramer, Michigan Consolidated Gas Co., Detroit, Mich.; and E. G. Campbell, The Peoples Gas Light & Coke Company.

Other scheduled speakers are Frank J. Hall and R. B. Allen, Michigan Consolidated Gas Co.; Martin L. Harris, Public Service Electric & Gas Co., and Alexander Macomber, Boston, Massachusetts.

Principal topics will include the handling of concentrated house heating loads, mechanization of gas service construction, pressures necessary to double distribution system capacity, pipe corrosion mitigation practices, light-weight trenchers, the steel situation, and others.

J. M. Pickford, Northern Indiana Public Service Co., vice-chairman, Distribution Committee, is chairman of the ever-popular luncheon conferences. M. C. Alves, Union Electric Co. of Missouri, St. Louis, Mo., chairman, Motor Vehicle Committee, will preside at the opening luncheon on the subject of motor vehicles.

Other luncheon meetings have been scheduled as follows: Work on Consumer Premises—C. S. Hazel, The Philadelphia Gas Works Co., committee chairman; Meters and Metering—H. J. Sterk, The Peoples Gas Light & Coke Co., committee chairman; Joint Construction & Maintenance and Distribution Design & Development—G. E. Hitz, Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y., and C. A. Brown, Rochester Gas & Electric Corp., Rochester, N. Y., committee chairmen.

Professor Amos E. Neyhart, speaker (left), and M. C. Alves, chairman, Motor Vehicle Committee

Symposiums on house heating servicing problems, motor vehicles, and mechanization of construction and maintenance, will be a feature of the program.

Heat

● Revolutionary type of match, producing heat but no light, war-time development of Canadian scientists, was demonstrated recently. Match head, larger than ordinary one, generates such intense heat that it immediately ignites any surface it touches without flame or light. Can be used anywhere, even in wind of gale force since, having no flame, it cannot be blown out. May start same sort of revolution in match industry that invention of friction match did in 1827. —*NANA*

Method for Demand Metering

BY R. J. OTT

Superintendent, Meter Division, The Philadelphia Gas Works Co., Philadelphia, Pa.

THE Meter Subcommittee of the Technical Section's Distribution Committee is presently studying demand metering —a subject in which the Subcommittee on Distribution Design and Development and the Committee on Rates are also interested. The meter division, The Philadelphia Gas Works Co., has devised the following method for recording the peaks and valleys of demand of individual customers:

This method is based on the fact that the number of cubic feet per hour flowing through a meter installation is proportional (although not directly proportional) to the difference between the pressure at the inlet of the installation and the pressure at the outlet. Therefore, if an accurate continuous record of the differential pressure across the installation can be obtained, such record can be translated into cubic feet per hour of gas flow by means of a curve showing the relationship between differential pressure and rate of gas flow for the particular installation. The curve is established by making a few simultaneous observations of differential pressure and rate flow.

The apparatus consists of a differential pressure recording gauge equipped with inlet and outlet connections of copper tubing. The gauge is mounted on a stand and is similar to gauges used for the recording of differential pressures across the orifices of orifice meters.

When a survey of demand is to be made, the apparatus is taken to the location and connected across the meter, or meters, through which the demand is being taken; the inlet of the gauge is connected to a tap in the inlet meter piping and the outlet of the gauge to a tap in the outlet meter piping.

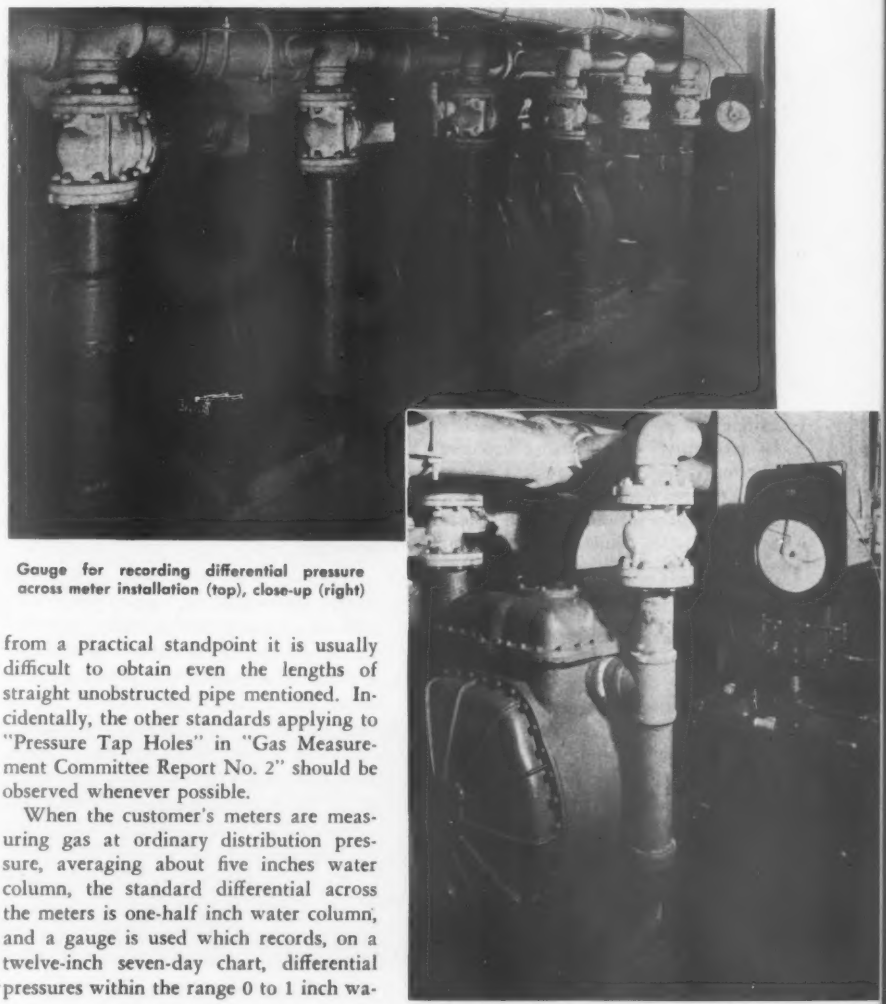
The taps are located as close to the meters as possible but with the provision that whenever possible there should be eight pipe diameters of unobstructed straight pipe on the upstream side of each tap and two and one-half pipe diameters of unobstructed straight pipe on the downstream side of each tap.

Reason for keeping the pressure taps away from valves, bends and other obstructions is, of course, to avoid the effect of eddy currents and other irregularities in the gas stream which are likely to produce large errors in the differential pressure recorded. The distances, eight pipe diameters ahead of the pressure tap and two and one-half pipe diameters beyond the pressure tap, were selected because they are the distances given in the authoritative "Gas Measurement Committee Report No. 2"* for the location of pressure tap holes for orifice meters.

There is, admittedly, no empirical basis for the adaption of these distances to the taking of differential pressures across meter installations. Probably longer distances of straight pipe ahead of and beyond the pressure taps would be advisable, but from a practical standpoint it is usually difficult to obtain even the lengths of straight unobstructed pipe mentioned. Incidentally, the other standards applying to "Pressure Tap Holes" in "Gas Measurement Committee Report No. 2" should be observed whenever possible.

When the customer's meters are measuring gas at ordinary distribution pressure, averaging about five inches water column, the standard differential across the meters is one-half inch water column, and a gauge is used which records, on a twelve-inch seven-day chart, differential pressures within the range 0 to 1 inch water column. When the customer's meters are measuring gas at high pressure, usually over one pound per square inch, the standard differential across the meters is two inches water column, and a gauge is used with records, on a twelve-inch seven-day chart, differential pressures within the range 0 to 4 inches water column.

One important use of the apparatus is to determine whether there are too few or too many meters connected. A mere inspection of the chart will answer this question. Since industrial loads are continually changing, it is not unusual to find that a "bank" of meters contains more or fewer meters than required. Since the general tendency is to "play safe" and set more meters than needed, the apparatus can



Gauge for recording differential pressure across meter installation (top), close-up (right)

*Available from American Gas Association, 420 Lexington Avenue, New York 17, N. Y., at $1.50 per copy. Purchasers within New York City limits please add New York City sales tax when remitting with order.

save the gas company money by eliminating such unneeded meters.

The chart shows the nature of the load very clearly. Industrial installations are frequently made, especially where there is no demand charge in the rate structure, so that there is a tremendous variation in the rate of use.

In the particular installation illustrated with this article, the rate of use during regular operation surged up to more than 80,000 cubic feet per hour at times and dropped down to less than 10,000 cubic feet per hour at other times. A fluctuating load of this nature prevents accurate metering, no matter what kind of meters are used, and may cause damage to the meter mechanism. Furthermore, pressure fluctuations resulting from the variations may be troublesome to the customer causing them and also to other customers in the vicinity. A surging load requires an investment in main, service, and meters which is out of proportion to the revenue derived from the load.

When the chart shows large variations in use, steps are advisable to engineer the installation so as to cut off the peaks and fill in the valleys. This engineering should, of course, be done in some way other than the expensive and unsatisfactory way of installing additional meters.

Responsibility

When such a study has been completed and is in operation, there should be a substantial lessening of the demands on the time of some of the policy executives. In this process, however, greater responsibility will be placed on the lower levels of management and, once placed in effect, the plan should be considered as a rigid assignment of responsibility, which must be accordingly accepted and executed. It is pointed out that no system of control alone can provide the necessary safeguards and that close scrutiny and an inquisitive approach to all transactions by those who are delegated the responsibility for approvals is a necessary corollary to a sound procedure.

One important aspect of the approval procedure which should be taken into account in the designation of the approval requirements for the several types of transactions is the general rule that those whose approvals constitute the basis for payment should not have responsibility for handling the material, keeping the books or signing the checks.

It is also important that periodic financial and other reports which reflect the results of the company's operations be given a critical review by operating personnel who know what is taking place physically and who can reconcile this knowledge with such periodic reported results.

APPROVALS

(Continued from page 29)

It is interesting that, in the study of the several companies previously referred to it was necessary to establish only six levels of approval authority running from the lowest level of supervision through the board of directors. However, the means of achieving the broad controls and the administration of the internal affairs of different companies will vary somewhat in accordance with the organization and administrative structure of the particular company. This is largely brought about by the relative importance of a principal functional activity in a particular company, the geographical area served, etc.

Under these conditions, it is not believed practicable to suggest a standardization of approvals or of approval levels for all companies, insofar as these may deal with specific job levels, with the exception of matters of major policy which require the approval of the board of directors and the chief executive. However, certain functions and many transactions are similar in many utility companies and the principles involved in achieving proper internal control also frequently are similar. The procedure outlined above generally should lend itself to any type of organization.

WATER HEATER

(Continued from page 21)

up to the top limit of the thermostat by simply turning a dial or moving a lever. This permits flexible control and temperature selection on the part of a customer. Hot water temperatures vary with the customer and the location. Some like, and have need for, higher temperatures than others. Some, such as those in hard water areas, prefer lower temperatured water, unless they have a water softener.

The modern automatic gas water heater thermostat is a dependable control. It operates mechanically. Most of them function by the expansion and contraction of a copper tube pressing on an inner rod with a lesser rate of expansion. There is little that can go wrong and they are simple to service, if necessary. Most gas thermostats, today, are designed so that when they fail, they fail in the closed position, should any major trouble develop.

Any automatic gas water heater with the A. G. A. seal of approval must have an automatic gas cut-off that functions to turn off the gas to the main burner and pilot within five minutes of pilot failure. Automatic gas cut-offs are of two types, called bi-metal and thermocouple. Bi-metal gas cut-offs function by the expansion or construction of a bi-metal strip which, when heated by the pilot, holds the gas valve open and when cooled by pilot outage, closes the valve. A thermocouple generates a slight current when heated which, in turn, holds open the gas valve. If the heat is taken away, the current stops generating and the valve closes.

The control we have in mind is typical of the combination type thermostat and automatic gas cut-off. By turning the top dial to pilot and pressing the red starter button in, the pilot can be lighted. It is necessary to hold the red button in a few seconds after the pilot has been lit. That allows time for the thermocouple to generate current to hold the gas valve in the open position. When the cut-off has taken hold then, and then only, can gas be fed to the main burner by turning the starter dial to the "on" position. The lower dial is for temperature selection.

This thermostat provides water temperature control over a broad range of temperatures. Right temperature assures the owner that he can take full advantage of those two new vehicles of modern living, the automatic clothes washer and the automatic dish washer.

The modern automatic gas water heater (Figure 11) is a simple yet well-designed and attractive appliance. It is in many respects, superior to any other type of water heater.

1. An automatic gas water heater is relatively low in *initial cost* for equivalent service.

2. An automatic gas water heater is relatively *cheaper to operate*. It is not necessary to store large quantities of hot water for peak day requirements.

3. An automatic gas water heater is relatively inexpensive to install.

4. An automatic gas water heater is *compact and attractive*.

5. Automatic gas water heater *service is flexible*. Its high recovery speed makes any quantity of hot water available for any use at any temperature in a short period of time. There is no long wait for hot water because of limited recovery. The automatic laundry machine and the electric dishwasher demand a full speed automatic gas water heater.

Modern gas water heaters have contributed much to the acceptance of gas as the universal fuel.

Laboratories

ARTHUR F. BRIDGE, Chairman
EDWIN L. HALL, Director

Requirements Revision Now in High Gear

REMARKABLE progress has been made in the revision of various approval, listing and installation requirements as the result of a series of recent committee meetings at the American Gas Association's Cleveland Laboratories. Outlined below are the principal accomplishments of ten such meetings which have been held since December 1, 1947.

Approval Standards

Simplification of gas range requirements has been completed by the range committee with a resulting reduction in text estimated at 25 percent.

Carried out as part of the program of simplifying, revising, and coordinating the various sets of appliance standards, action was initiated last year. A tentative revised text was adopted in June and distributed to the industry for criticism and comment.

Suggestions received were reviewed by the range committee at its January meeting. Resulting recommendations now go to the Approval Requirements Committee for final action at its March meeting. On adoption, they will become effective January 1, 1949.

Requirements believed to be obsolete or unnecessary have been eliminated and performance tests substituted for constructional specifications wherever possible. The subject matter has been arranged in more logical order with related subjects grouped together.

Comments received earlier in the year indicated that the term "kitchen ventilation" is not very well understood, carrying different meanings to different groups. Consequently new venting requirements for ranges, which were formulated to permit employment of kitchen ventilating systems, were revised for clarity. It was pointed out that the objective of such systems was to remove heat, cooking odors and vaporized grease at its source rather than to ventilate the whole kitchen. These features have already been approved and became effective January 1, 1948.

As adopted, venting requirements permit ranges to incorporate (1) a natural venting system (2) a mechanical forced draft venting system or (3) a design employing a combination of both systems which is under the control of the operator and yet insures satisfactory and safe performance. The latter construction, it was pointed out, could be accomplished as suggested in Research Bulletin No. 27, "A Study of Performance Characteristics of Vented Domestic Gas Ranges."

Other changes of particular interest in the new range text include elimination of cookie baking and preheating tests as well as clarification of requirements for oven thermostats so that the use of snap-acting controls is permissible. Efforts to find a more suitable combustion test for top burners than the so-called "wash boiler" test are to be continued, although it was brought out that any effective combustion test developed probably would not greatly effect present top section design since proper aeration for safety is essential.

Revised requirements for portable baking and roasting ovens have been reviewed in the light of suggestions received from the industry and appropriate changes made. The same also applies to revised text of requirements for hot plates and laundry stoves.

In addition to the above-mentioned standards, requirements for space heaters, water heaters and unit heaters are undergoing simplification and reorientation. The three committees for these appliances considered text revisions at meetings held in September and January. Space heater and unit heater revisions were completed and will go out for comment and criticism. Similar action will be taken in the case of a revised text for flexible gas tubing.

Rewriting of central heating requirements for committee consideration and subsequent review by the industry is expected to be undertaken by the Laboratories shortly as the next step in the simplification program. The central heating committee has adopted in principle that portion of proposed eastern utility standards which are applicable to all types of gases. They will be embodied in the new text.

Listing Standards

The automatic main control valve group and the pressure regulator group met in February and considered comments on modifications to these texts. Those for low water cut-off devices which are under jurisdiction of the main control valve group were also reviewed. All now go to the Approval Requirements Committee for disposition.

Installation Requirements

The Approval Requirements Committee is also scheduled to consider at its March meeting a complete new text on installation requirements for conversion burners. Comments and criticisms were reviewed at its December meeting by the conversion burner committee and necessary modifications made.

The text contains 16 illustrations of various phases of installation problems intended to help the service men. The conversion burner group has recommended that the text be published in pocket size as well as in the usual manner required for all requirements. Baffling of flues to obtain the correct neutral pressure point in a furnace is permitted by the new requirements.

Requirements for dual oven type combination gas ranges, adopted by the Approval Requirements Committee at its June, 1947 meeting, have been approved

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Recent meeting of A. G. A. Subcommittee on Approval Requirements for Domestic Gas Ranges

Personal and Otherwise

Beck Heads A. G. A. Rate Committee

F. C. Beck

APPOINTMENT of Frederick C. Beck, Shreveport, La., as 1948 chairman, American Gas Association Rate Committee, is announced by Hudson W. Reed, president of the Association.

Mr. Beck has been active in rate work for nearly 20 years and is head of the rate department of United Gas Pipe Line Co., which serves more than 300 cities and towns in five southern states.

Born in Philadelphia 45 years ago, Mr. Beck was educated at Lehigh University, where he obtained a degree in electrical engineering. His first job was with Duquesne Light Co., Pittsburgh, where he worked as apprentice engineer for about a year. He moved to Pennsylvania Power & Light Company in the construction department for another year, then joined the rate department, Electric Bond & Share Co., where he devoted most of his time to the foreign rate division, American & Foreign Power Company.

His work in this division took him to Brazil for a year and to Mexico for eight months. He switched to the domestic department and was assigned to United Gas Public Service Co., Houston, Texas, in November 1930, and has remained with United Gas ever since.

In May 1931, he was made head of the U.G.P.S. rate department, then moved into the sales department in 1933, while still responsible for rates. The company became United Gas Pipe Line Company in 1937, and Mr. Beck moved to Shreveport with the firm's general headquarters in 1940. In mid-1947, he was named head of the newly-created rate department of United Gas Pipe Line Company.

He has been active on the A. G. A. Rate Committee since 1938.

Consolidated Edison Man Wins McCarter Award

THE American Gas Association's prized McCarter Medal and Certificate have been awarded to George J. Heim, distribution operation department, Consolidated Edison Co. of New York, Incorporated.

Presentation was made January 22, 1948 in recognition of the saving of a life last spring by application of the Schafer prone pressure method of resuscitation.

Rahn Retires from Milwaukee Gas Light

Bruno Rahn

J. A. B. Lovett

BRUNO RAHN has retired as president, Milwaukee Gas Light Co., after 48 years of service and has been succeeded as president by J. A. B. Lovett, executive vice-president since March 1947.

Mr. Rahn was a director, American Gas Association, 1940-45. He joined the Milwaukee company in 1900 as an office boy and served in numerous capacities until 1939 when he was elected president.

Mr. Lovett has been connected with the gas industry in Milwaukee since 1939 when he moved there to head the Milwaukee Solvay Coke Co., a position to which he was reelected at the same time that he was named head of the gas company.

During his years in the gas and allied industries he was connected with such firms as Jones & Laughlin Steel Co., as assistant superintendent; McKinney Steel Co., as general foreman of the benzol and by-product plant; and with Koppers Company as foreign representative, head of the construction division, and general superintendent of all Kopper's gas and coke plants.

Before moving to Milwaukee he was vice-president and general manager, Hamilton Coke & Iron Co., and assistant to the vice-president, American Rolling Mill Company.

Others Promoted

Promotion of several other Milwaukee Gas Light Company executives was also announced at the annual stockholders and directors meeting, February 2. Paul J. Imse, a veteran gas man who has served the company since 1905, was named secretary-treasurer to succeed Louis T. Smith who has retired because of long illness.

The position of assistant secretary and assistant treasurer, held by Mr. Imse since 1940, was filled by Earl Frank, formerly company auditor.

Tom E. Hayes, who has held the post of research engineer and claim agent since 1937, was appointed director of personnel and public relations—a new position in the company.

Arnold Altenhofen was promoted from statistician to auditor, and was succeeded as statistician by Frank Lipsky.

Directors named include Mr. Lovett, W. G. Woolfolk, F. L. Conrad, John Dern, Ralph T. McElvenny, F. W. Sharp, Herbert T. Lindsay, W. C. Buchanan, and C. O. Wanvig.

Hagerman Elected A. G. A. Director

O. S. Hagerman

OLIVER S. HAGERMAN, president and general manager, Charleston, West Virginia, group companies of the Columbia Gas & Electric Corp., was elected a member of the Executive Board, American Gas Association, at the February 4 meeting of the A.G.A. Board in New York. He fills the unexpired terms of R. G. Barnett, Portland Gas & Coke Co., Portland, Ore., who became an ex-officio member of the board recently when he was named chairman, A. G. A. Publicity and Advertising Committee.

The new A. G. A. director, Mr. Hagerman, graduated in 1918 from the University of Minnesota with a B.S. in mechanical engineering. He was an ensign in the U. S. Naval Reserve during 1918-1919 and began his utility work the latter year as a cadet engineer with the St. Paul Gas Light Company. From 1923 until 1936 he was associated with the American Light and Traction Company, first as assistant engineer and then as engineer.

Mr. Hagerman became president, Atlantic Seaboard Corp., a Columbia Gas & Electric subsidiary, in 1937 and continued in that post until 1946 when he was named vice-president and general manager of the Charleston group of Columbia companies. Since May 1947, he has been president and general manager of this group of which the principal company is United Fuel Gas Company.

Active in trade association work, Mr. Hagerman has handled many important A. G. A. assignments. He is a past-chairman of the Technical Section as well as of the Pipe Joint and Distribution Committees. He is a vice-president, West Virginia Oil and Natural Gas Association and a member, American Society of Mechanical Engineers and the Society of Gas Lighting.

Greene Succeeds Gamble at Birmingham

J. N. Greene

JOSEPH N. GREENE, president, Alabama Gas Co., with headquarters in Birmingham, Ala., has been appointed to the additional post of president, Birmingham Gas Co., an affiliated concern, to succeed Charles B. Gamble, Sr., who retired as head of Birmingham Gas Company effective February 5, 1948.

Mr. Greene is currently a director and member of the Executive Board, American Gas Association, as well as a member of the Association's Finance Committee. He has served several terms as chairman, A. G. A. Membership Committee.

Mr. Gamble is a member of several A. G. A committees and is also an active member of the Southern Gas Association.

The retiring president's whole business life has been spent in the utility field. He started his career in 1903 with The Philadelphia Gas Works Co., Philadelphia, Pa., and since then has served with The United Gas Improvement Co., also in Philadelphia, and later with Minneapolis Gas Light Co., Minneapolis, Minn., where he became vice-president in charge of operations.

In 1931 he was appointed vice-president and general manager, Birmingham Gas.

Satterfield Advanced By Equitable Gas

N. K. Satterfield

APPOINTMENT of N. K. Satterfield as supervisor of trade and dealer relations, general sales department, Equitable Gas Co., Pittsburgh, Pa., has been announced by Ray Little, general sales manager.

Mr. Satterfield entered the company's employ in July 1935 as a salesman in the sales and service department, and has since served as inspector salesman, residential salesman, supervisor of residential sales, appliance salesman, residential supervisor, and merchandise store manager.

Executives Promoted In New Jersey

TOP management changes announced by George H. Blake, president, Public Service Electric and Gas Co., Newark, N. J., include the election of Donald C. Luce as vice-president in charge of electric operation, and appointment of Watson F. Tait, Jr., as general manager, electric department.

Mr. Luce and William H. Blake were elected members of the board of directors, Public Service Electric & Gas Co., and Public Service transportation companies. Mr. Blake is general solicitor of these companies.

Lyle McDonald, previously elected vice-president in charge of finance, and Jacob T. Barron, elected vice-president in charge of combined operations, Public Service Corp. of New Jersey, were elected to the same posts, respectively, in Public Service Electric & Gas Company, and Public Service transportation companies.

Joseph T. Foster, vice-president in charge of real estate and purchases for the electric and gas, and the transportation companies, was appointed a member of the executive committee for these companies.

Other changes in Public Service Electric & Gas include: Franklyn Heydecke, appointed comptroller; and F. Warren Cooper, appointed assistant comptroller. Mr. Heydecke was formerly general auditor and Mr. Cooper, assistant general auditor. Both men were appointed last week to the same posts, respectively, in the corporation.

Keeler Moves Up At Equitable Gas

E. E. Keeler

E. E. KEELER has been appointed assistant general superintendent of distribution, Equitable Gas Company, Pittsburgh, Pa., under changes in the organization of the company's operating departments which became effective February 1.

Mr. Keeler came to Pittsburgh in December 1920, after 20 years of experience with the Kansas City Gas Company, to accept the position of superintendent of Equitable's Division "E" (McKeesport). He has since served the company's distribution department as superintendent of several of its divisions.

He is a member of the American Gas Association, Western Pennsylvania Natural Gas Men's Association, Pittsburgh Chamber of Commerce and North Side Chamber of Commerce.

A. E. Dible, former assistant superintendent of Division "C" (East Liberty), has been appointed assistant to general superintendent.

To implement the above personnel changes at Equitable Gas and certain changes in division boundaries, the following have been named to new posts:

A. F. Hoehle, formerly superintendent of Division "G" (Large), has been appointed superintendent of Division "A" (South Side), succeeding Mr. Keeler. J. H. Marks, former assistant superintendent of Division "G," has been appointed superintendent of a new Division "B" (North Side), with J. K. Finn, district foreman, becoming assistant superintendent. J. R. Bowser has been transferred from Division "E" (McKeesport) to Division "C" (East Liberty) as assistant superintendent. And F. J. McKenna, formerly district foreman in Division "A," has been named assistant superintendent of Division "E" (McKeesport).

President Names Black to Labor-Management Panel

J. B. Black

JAMES B. BLACK, president, Pacific Gas & Electric Co., San Francisco, Calif., has been appointed by President Truman to the national labor-management panel which will work with the Federal Mediation and Conciliation Service to help avoid industrial controversies.

Other management members on the board are Benjamin F. Fairless, president, United States Steel; Lewis Lapham, president, American-Hawaiian Steamship Co.; Charles E. Wilson, president, General Electric Co.; Paul G. Hoffman, president, Studebaker Corp., and George M. Humphrey, president, M. A. Hannah Company.

Labor members of the panel are William Green, Philip Murray, Harvey W. Brown, Clinton S. Golden, Allan S. Haywood, and William L. Hutcheson.

Mr. Black served recently on the President's Advisory Committee on the Merchant Marine.

California Executive Gets New Directorship

LEROY M. EDWARDS, vice-president and general manager, Pacific Lighting Corp., Los Angeles, Calif., has been elected a director, American President Lines which operates American flag steamships in Oriental and round-the-world services.

Mr. Edwards, a past-president, Pacific Coast Gas Association and Los Angeles Chamber of Commerce, becomes the company's only Southern California director. He succeeds the late A. Emory Wishon, San Francisco.

Nugent to Direct Bryant Heater Sales Promotion

Frank J. Nugent

FRANK J. NUGENT, general manager of appliance sales for Rheem Manufacturing Company since 1944, has accepted the position of sales promotion manager, Bryant Heater Co., Cleveland, O., according to an announcement by J. N. Crawford, vice-president in charge of sales for the latter firm.

Mr. Nugent joined Bryant in January and is a recognized authority in the heating and water heating field. He is first vice-president, Gas Appliance Manufacturers Association, and chairman, G.A.M.A. water heater section.

Prior to joining Rheem in 1939, Mr. Nugent was associated with Koppel Car and Equipment Co., the Blaw Knox Co., and Pittsburgh Water Heater Sales Company.

Valve System Inventor Retires in Vancouver

FRED E. REED, gas sales engineer, has retired from British Columbia Electric Co., Ltd., Vancouver, B. C., and has been succeeded by George Hargreaves, recently with the power sales section of the company.

Mr. Reed is well-known as the inventor, nearly 20 years ago, of a valve system which made it possible to run a gas line across the Second Narrows bridge over Burrard Inlet, automatically shutting off the gas when the span opens and resuming the flow when the span closes. Meanwhile pressure was maintained by a reserve in a spherical holder.

The valve system has not failed once during the two decades since it was installed. The invention won world-wide attention in engineering circles.

Mr. Reed joined the company in June 1912 and shortly after became assistant gas engineer. Daily gas production at that time was about 60 thousand cubic feet a day and has since risen to as much as 13 million cubic feet a day. Mr. Reed later became gas sales manager—a title which was recently changed to gas sales engineer.

Wise Moves to Bryant Heater

W. H. Wise

WILLIAM H. WISE, formerly sales engineering manager, domestic sales division, The Peoples Gas Light & Coke Co., Chicago, Ill., has joined The Bryant Heater Co., Cleveland, O., as manager of the firm's Chicago branch.

Mr. Wise became domestic sales engineering manager of Peoples Gas in 1944, having joined the company seven years before. During this period he developed a thorough experience and knowledge of space heating markets, equipment and sales problems.

His new office is at 5108 W. Madison St., Chicago, with a complete organization to service all makes of heating equipment.

Cities Service Official Honored for War Work

W. A. Jones

THE President's Certificate of Merit for services to the government during the last war has been presented to W. Alton Jones, president, Cities Service Co., New York. Presentation of the award was made by Kenneth C. Royall, Secretary of the Army, on February 6.

Mr. Jones played a prominent role in developing and promoting plans for the inch pipelines to deliver petroleum products essential to the maintenance of war industries along the east coast.

Law Heads New York Engineers Club

C. L. Law

CLARENCE L. LAW, vice-president in charge of public relations, Consolidated Edison Co. of New York, Inc., was elected president, Engineers Club, New York, at a meeting January 27.

Mr. Law was vice-president of the Engineers Club last year and served on the board of managers. In the past he served as chairman of the club's finance committee. He is a member of the National Advertising Committee, American Gas Association, and a director, Westchester Lighting Company and Yonkers Electric Light & Power Co., both subsidiaries of Consolidated Edison.

Northern Natural Gas Promotes Four

J. F. Merriam

A. B. Dilworth

H. H. Siert

ELEVATION of John F. Merriam from vice-president and treasurer to executive vice-president, Northern Natural Gas Co., Omaha, Neb., has been announced by Burt R. Bay, president.

At the same time, Mr. Bay announced the promotion of Asa B. Dilworth from controller to vice-president and controller, Harry H. Siert from assistant treasurer to treasurer, and Paul W. Severance to assistant treasurer.

Mr. Merriam joined the firm in 1930 and has served as assistant secretary, assistant to the president, secretary and treasurer, and vice-president and treasurer.

Mr. Dilworth joined the company in 1930 as an accountant, later became general auditor and assistant treasurer, and since March 1936 has served as chief accounting officer.

Mr. Siert was first employed by Northern Natural in 1934 and has served as assistant treasurer for the past four years. Mr. Severance has been with the company practically since its organization and during the last seven years has been associated with the treasury department.

New Jersey Gas Man Completes Long Career

ORMSBY F. POTTER retired effective January 16 after more than 53 years of service with Public Service Electric and Gas Co., Newark, New Jersey. Mr. Potter has been assistant general auditor, gas, since 1936.

He started in the gas industry in September 1894 with a predecessor company in Paterson, N. J., immediately after graduating from high school. During the next three years he held the positions of combination clerk, meter reader, collector, and salesman. In February 1897, he became bookkeeper and was promoted to head bookkeeper in June 1900.

In 1904, a year after Public Service was formed, Mr. Potter was appointed traveling auditor, a position which he held until he was made assistant to the general auditor in 1910.

Mr. Potter has been active in committee work with the American Gas Association and is a past-president, New Jersey Gas Association.

Associated Organization Activities

Pennsylvania Mid-Winter Gas Conference

MORE than 300 members and guests at the mid-winter conference of the Pennsylvania Gas Association studied the need for selling gas and appliances in the competitive era ahead. The meeting was held Jan. 30 at the Benjamin Franklin Hotel, Philadelphia.

Gordon Jones, Reading, Pa., member of the sales promotion committee, opened the meeting and President J. M. Huebner welcomed the guests, following which speakers were introduced by Harold Zeamer, Philadelphia.

George S. Jones, Jr., vice-president, Servel, Inc., Evansville, Ind., reported there are 2,500,000 gas refrigerators in use, utilizing 330 million therms annually, and bringing in some $38 million. He said an additional 500,000 gas refrigerators would be sold this year.

Looking forward to the replacement of old automatic refrigerators, Mr. Jones said such sales would constitute 80 percent of the market. He showed that repeated surveys prove gas will get an increasing percentage of this total.

Robert Stevens and Gordon Malone, also of Servel, dramatized this company's sales selection program, sales seminar, the miniature demonstrator and other sales aids, and the Servel national advertising program which reaches 50 million readers each month.

Hudson W. Reed, president, American Gas Association, and The Philadelphia Gas Works Co., cautioned the manufactured gas industry to focus its sales efforts on uses offering the best return on investment.

"CP" Skit Amuses

The Brooklyn Union Gas Company players presented an amusing and inspiring skit on how to sell the new automatic gas ranges built to "CP" standards. The cast included Harold Coleman, Edward J. Cantwell, Regina Barry, Maude Dunn, Angela Papa, and Andy Tomanek, narrator.

At the group luncheon, feature speaker was "Mayor" Con McCole, Wilkes-Barre humorist.

W. D. Williams, Public Service Electric & Gas Co., Newark, N. J., chairman, A. G. A. Water Heating Committee, proved the advantages of gas in cost, temperature selection, speed and convenience in water heating.

M. R. Rogers, Bendix Home Appliance Corp., praised the gas laundry dryer as a modern service for the customer and a revenue-builder for the gas company.

H. Carl Wolf, A. G. A. managing director, warned that "selling time is here again" and urged gas companies and dealers to be prepared with well-trained salesmen. He urged a close study of the Elmo Roper survey to guide local and regional sales, and said gas men must sell not just appliances but also gas service, rates, and themselves.

Closing feature was a convincing sound-color film by the Bryant Heater Company, proving the need for thorough selling of house heating equipment.

N. E. G. A. Lists Broad Conference Program

SIXTEEN presentations covering a wide variety of subjects have been selected for the twenty-first annual business conference of the New England Gas Association at the Hotel Statler, Boston, March 18-19, according to E. C. McGraw, vice-president, Stone and Webster Corp., Boston, chairman of the program committee.

Following election of officers and directors Thursday morning, conferees will hear the report of Clark Belden, N.E.G.A. executive secretary, after which Hugh H. Cuthrell, vice-president, The Brooklyn Union Gas Co., and chairman, American Gas Association General Promotional Planning Committee, will discuss tomorrow's sales operations.

James A. Cook, vice-president and general manager, Lynn Gas & Electric Co., and N.E.G.A., president, will be the next speaker followed by Hudson W. Reed, president, A. G. A. and The Philadelphia Gas Works Company.

Opening address at the afternoon session will be delivered on high B.t.u. gas at Cambridge, by Hall M. Henry, director of gas operation, NEGEA Service Corp., and N.E.G.A. past-president. Natural gas and New England is the subject to be discussed by Charles G. Young, vice-president and general manager, Springfield Gas Light Co., also a N.E.G.A. past-president. E. D. Anderson, vice-president, Northern Indiana Public Service Co., will cover conversion to straight natural gas. Using natural gas to increase plant capacity will be discussed by R. E. Kruger, general superintendent of gas, Rochester Gas and Electric Corporation.

Dr. N. K. Chaney, consultant, A. G. A. gas production research, will open the Friday morning program followed by John A. Robertshaw, president, Gas Appliance Manufacturers Association, and Robertshaw-Fulton Controls Company. Gas industry sales fundamentals will be discussed by William J. Foster, vice-president, George D. Roper Corp., and accounting and management by W. Arnold Hosmer, professor of accounting, Harvard Business School.

On Friday afternoon, Joseph L. Snider, professor, business economics, Harvard Business School, will present a talk on economic outlook. Labor and management will be discussed by Douglass V. Brown, Sloan professor of industrial management, M.I.T., and fuels of the future by Lyon F. Terry, second vice-president, The Chase National Bank, New York. Final address on the program will be delivered on administrative commissions by Clyde O. Ruggles, professor of public utility management and regulation, Harvard Business School.

S. G. A. Ready for Galveston Convention

A BROAD program which will present the latest developments in many phases of the natural gas industry has been completed for the thirty-seventh annual convention of the Southern Gas Association in Galveston, Texas, March 24-26.

Outstanding speakers who will be featured on the program include: Dr. Alfred P. Haake, economic consultant to General Motors Corp.; R. W. Carney, sales manager, Coleman Co., Inc.; W. N. Blinks, General Gas Light Co.; Harry A. Atwater, Combustion Equipment Co.; Frank C. Smith, president, Houston Natural Gas Corp., Houston, Texas; A. B. Banowsky, Payne Furnace Co.; Hudson W. Reed, president, American Gas Association and The Philadelphia Gas Works Co., Philadelphia, Pa.; Chester L. May, vice-president, Lone Star Gas Co., Dallas, Texas; C. H. Zachry, president, Southern Union Gas Co., Dallas; H. C. Price, president, H. C. Price Construction Co.; Frank J. Nugent, vice-president, Gas Appliance Manufacturers Association; Esther Latzke, home economist, Armour and Company, and Elizabeth Lynahan, chairman, A. G. A. Home Service Committee.

The convention will open officially with sectional meetings on Wednesday afternoon, March 24, following registration that morning. A home service workshop, home service luncheon, a round-table discussion on accident prevention problems, all are scheduled for Wednesday morning.

General sessions will be held Thursday morning followed by an operating luncheon and a general sales luncheon. That afternoon, sectional meetings will again be conducted and the day will conclude with the manufacturer's Friendship Room beginning at 5:30.

The convention will wind up its affairs with a business meeting at the general session luncheon Thursday followed by a talk by Jeff Williams, Oklahoma philosopher and humorist.

J. J. Sheehan, Texas Public Service Co., is chairman of the housing committee which is arranging housing accommodations for the 1,200 delegates who are expected to attend. Most member companies have already made reservations for their personnel, and individuals who have not reserved hotel rooms should write to Housing Committee, Southern Gas Association, 1230 Mercantile Bank Building, Dallas, Texas.

Natural Gas Group Selects Hartson

D. P. Hartson

D. P. HARTSON, vice-president and general manager, Equitable Gas Co., Pittsburgh, Pa., was elected president, Pennsylvania Natural Gas Men's Association, during the annual business meeting in the William Penn Hotel, Pittsburgh, January 21. Mr. Hartson is a director, American Gas Association, and past-chairman, A. G. A. Technical Section and A. G. A. National Advertising Committee.

J. H. Isherwood, Allegany Gas Co., Port Allegany, Pa., was elected vice-president of the association; P. L. Kesel, was elected secretary-treasurer; Mark Shields, executive-secretary, and B. H. Smyers, Jr., Pittsburgh, counsel.

The following men were elected to the board of directors for 1948: C. E. Bennett, Manufacturers Light and Heat Co., Pittsburgh; E. M. Borger, The Peoples Natural Gas Co., Pittsburgh; H. D. Freeland, Waynesburg; D. P. Hartson; J. H. Isherwood; J. J. Jacob, Jr., The Peoples Natural Gas Co.; D. S. Keenan, Carnegie Natural Gas Co., Pittsburgh; I. K. Peck, Manufacturers Light & Heat Co.; B. D. Phillips, T. W. Phillips Gas & Oil Co., Butler; H. H. Pigott, Equitable Gas Co.; G. E. Welker, United Natural Gas Co., Oil City.

President Hartson appointed the following gas men as the association's representatives on American Gas Association managing committees; Accounting Section—H. D. Borger; Industrial and Commercial Gas Section—P. W. Craig, Equitable Gas Co.; Residential Gas Section—Christy Payne, Jr., The Peoples Natural Gas Co.; Technical Section—A. B. Lauderbaugh, Manufacturers Light & Heat Company.

Missouri Group Schedules First Postwar Convention

PLANS for the 1948 convention of the Missouri Association of Public Utilities in St. Louis, April 28-30, are nearing completion, according to J. W. McAfee, The Union Electric Co., St. Louis, president of the association. This will be the first convention the organization has held since the start of the war and an imposing group of speakers has been invited to participate.

Already scheduled to appear on the program are Hudson W. Reed, president, The Philadelphia Gas Works Co., and president, American Gas Association; Charles E. Oakes, president, Pennsylvania Power & Light Co., and president, Edison Electric Institute; and N. T. Veach, Black & Veach Engineering Co., Kansas City, Mo., president, American Water Works Association.

Another nationally known speaker who will appear on the program is E. R. Dunning, vice-president, N. W. Ayer & Son, who will talk on the subject "The Utilities and Their Most Important Problem." He will discuss the understanding and relationship between the public and the company.

Dudley Sanford, Union Electric, St. Louis, is chairman of the program committee and Paul Ford, manager, The Gas Service Co., Independence, Mo., is entertainment committee chairman.

Obituary

DR. AUGUST C. KLEIN, vice-president and engineering manager, Stone & Webster Engineering Corp., New York, who supervised the engineering design of the large electromagnetic uranium separation plant at Oak Ridge, Tenn., and was in charge of the layout and design of Oak Ridge, died recently while on vacation in Montego Bay, Jamaica, B. W. I.

High among Dr. Klein's achievements was supervision of the engineering design of the first atomic pile at the Argonne Forest Laboratory, University of Chicago.

Before the first World War he was a gas engineer for United Gas Improvement Co., Philadelphia. After his military service, he became a gas engineer in Stone & Webster's Boston office. Later he enlarged his activity to include design of steam power plants and chemical plants and became an authority on depreciation and public utility rates.

In 1929 Dr. Klein was named chief mechanical engineer of Stone & Webster. During the recent war he was detached from other work to take charge of several large TNT plants being built for the United States Army.

He became engineering manager of Stone & Webster in 1945 and a year later was elected vice-president. In recognition of his service with the atomic bomb project he was awarded a degree of Doctor of Science from Stevens Institute last year. He was a member of the American Gas Association and had many friends in the industry.

Surviving are a wife, Maree Stone Keeling Klein; four sons, a daughter, a brother, and two sisters.

CHARLES GEORGE NYE, manager since 1946 of the auditing department, Consolidated Edison Co. of New York Inc., died recently at his home in the Bronx, New York, following a long illness.

Mr. Nye became a clerk for Standard Gas Light Co., a predecessor of Consolidated Edison, in 1921. He was a member of the American Gas Association and Edison Electric Institute, and was scheduled to participate in the joint A. G. A.-E. E. I. National Conference of Electric and Gas Utility Accountants in St. Louis, Mo., April 12-14. He was also a member of the Institute of Internal Auditors and the Knights of Columbus.

GEORGE J. ROBERTS, civil engineer and former vice-president in charge of operations, Public Service Corp. of New Jersey, died February 11 in a Richmond hospital, where he had been a resident patient for ten years. His age was 84.

Born in Charlotte County, Mr. Roberts was graduated in 1884 from the Stevens Institute of Technology, Hoboken, N. J. He became associated with the United Gas Improvement Co., Philadelphia, and then with the Public Service Corporation of New Jersey.

REQUIREMENTS REVISION

(Continued from page 37)

by the American Standards Association and became effective the first of the year. They will be published under the A.S.A. designation Z21.37-1948 and circulated to the industry as well as to foreign standardization bodies.

To provide data for selection of test gases as fully representative of gas fuels over the range now employed, a review of laboratory test gases and pressures employed in the requirements program has been authorized by the Committee on Test Gases and Test Pressures. In the case of city gases resulting data will provide a basis for a revaluation of the adequacy of present manufactured, natural and mixed test gases to assure ability of appliances to operate satisfactorily in service on all such gases now commonly distributed.

For liquefied petroleum gases and their mixtures with air the committee authorized immediate tests on representative appliances. Both propane and butane from natural gas and refinery sources will be considered as differences have been previously noted in the performance of appliances operating on various gases from the two sources indicated. One of the main objectives is to make possible approval of equipment for liquefied petroleum-air-gas mixtures as a class.

FOUNDRY SHOW

(Continued from page 32)

Association has participated in a foundry show, and the decision was made because of the widespread application of gas in this field.

Many foundrymen know the advantages of gas for use in both ferrous and non-ferrous foundry operations, and it is hoped that gas industry representation in this show will call attention of foundrymen and gas men to the many advantages of gas fuel in this important segment of the metal working industry.

CLIFFORD B. LEPAGE, assistant secretary for 30 years, The American Society of Mechanical Engineers, died suddenly January 15 in Hartford, Conn., after attending a technical committee meeting.

Mr. LePage had many friends in the gas industry as well as in the engineering and scientific fraternity. He became assistant secretary, A.S.M.E., in charge of the technical committee's activity in 1918 and was also secretary to the society's standing committees on research, standardization, power test codes, and safety.

He was active in national and international standardization, codification, and research work, and in that connection made numerous trips abroad from 1925 to 1938. During the last war he served as part-time consultant on standardization matters in the Conservation Division, War Production Board.

Mr. LePage was a Fellow of the American Association for the Advancement of Science, and a member of the American Society for Engineering Education, the Illuminating Engineering Society, the American Trade Association Executives, and the Trade Association Executives of New York.

New A. G. A. Members

GAS COMPANIES

Texas Public Service Co., Austin, Texas (William Lawlor, Jr., vice-president)

MANUFACTURER COMPANIES

American Metal Products Co., Fort Worth, Texas (John Grace, assistant manager)

Ascot Gas Water Heaters, Ltd., London, England (G. H. Rosam, export manager)

Electrocap Mold Co., Pittsburgh, Pa. (Fred E. Nelson, owner and general manager)

Integrity Mfg. Co., Monterey Park, Calif. (Myer Koff, treasurer)

Marquis Sheet Metal Works, Los Angeles, Calif. (Riley Marquis, owner)

Mechanical Home Systems Co., Dallas, Texas (Rogers Follansbee, general manager)

Sala-Ruhl Products, Dallas, Texas (Charles L. Ruhl, president)

E. C. Siqueira & Co., Berkley, Calif. (E. C. Siqueira, manager)

Spencer Heater Div., AVCO Mfg. Corp., Williamsport, Pa. (I. Boardman, sales manager)

Spencer Turbine Co., Hartford, Conn. (R. I. Brackett, vice-president)

Supermatic Products Corp., Burbank, Calif. (Arnold L. Rose, president)

INDIVIDUAL MEMBERS

Melvin W. Ager, Southern Counties Gas Co., Los Angeles, Calif.

R. F. Allan, Northwestern Utilities Ltd., Edmonton, Canada

James P. Armstrong, Southern Counties Gas Co., Los Angeles, Calif.

Frank Bacon, Jr., Southern Counties Gas Co., Tustin, Calif.

Wm. P. Bair, Southern Counties Gas Co., Pasadena, Calif.

George W. Bartch, Southern Counties Gas Co., Venice, Calif.

James H. Bartley, Iowa-Illinois Gas & Electric Co., Rock Island, Ill.

A. W. Beck, Robertshaw-Fulton Controls Co., Lynwood, Calif.

H. H. Blackburn, Southern Counties Gas Co., Los Angeles, Calif.

A. F. Bolgrien, Wisconsin Power & Light Co., Beloit, Wisc.

Samuel L. Bowen, The Brooklyn Union Gas Co., Brooklyn, N. Y.

O. T. Boyd, Southern California Gas Co., Compton, Calif.

A. L. Boyer, Southern California Gas Co., Los Angeles, Calif.

H. H. Bradley, Jr., Southern Counties Gas Co., San Gabriel, Calif.

B. E. Bridge, Hope Natural Gas Co., Clarksburg, W. Va.

Jack S. Burk, Barnard & Burk, Baton Rouge, La.

Arthur G. Burnett, New York Power & Light Corp., Albany, N. Y.

William B. Cameron, The Brooklyn Union Gas Co., Brooklyn, N. Y.

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Personnel Service

SERVICES OFFERED

Gas Engineer—Graduate, long supervisory experience in all phases water gas plant production. Some by-product coke plant experience. Familiar with industrial utilization of manufactured and natural gas, propane, etc. **1567**

Sales Manager—over 15 years experience in manufactured gas now successfully managing sales; gas usage, appliance direct and dealer, also advertising, for utility of 25,000 meters. Change necessitated by considerations other than business. New England, New York or New Jersey area preferred. **1568**

Gas Engineer—Broad experience in gas industry including gas production, distribution methods, estimating gas sales and production requirements. Also research on customers service, gas utilization, large volume meter testing, and load studies. Recent work has been administrative. Managerial work in Midwest preferred. **1569.**

Chemist—January 1948 graduate—Majored in organic chemistry with a special course in quantitative organic microanalysis. Seeks opportunity and will work hard to learn and gain experience. (20). **1570.**

Executive Engineer—Seventeen years engineering experience leading to Chief Engineer, through all departments with large, well known organizations manufacturing heating, air conditioning equipment, presses, automatic machinery and electronic equipment. Unusual ability to get along with people and get things done. Graduate Mechanical Engineer. Married. (33). **1571.**

Sales connection with reputable manufacturer of stoves. 18 years personal contact with utility merchandising; interested in Southern and Southwest territories. **1572.**

Gas utilization engineer with broad experience in appliance development, testing, and research desires employment with sound, progressive organization which will lead to administrative position in production. Southwest location preferred but not absolutely essential. **1573.**

Gas Engineer—Experienced in manufacture and distribution of coal, water and propane gas. Presently employed as General Superintendent of gas company but desires change. Veteran, technical graduate licensed engineer. Will consider work outside U. S. Single. (36) **1574.**

Chemical Engineer—1948 graduate seeks employment, preferably in production or process design work, but will consider any other type. Married, veteran. Knows Spanish. (29) **1575.**

POSITIONS OPEN

Sales Manager for Manufactured Gas Utility in South East serving 24,000 customers. Must be fully acquainted with merchandising and dealer cooperation policies. **0517.**

Designer—Development, test and service of oil and gas furnaces. Must have engineering degree with at least five years' experience in this field. Excellent position with well-established and rapidly growing Midwestern furnace manufacturer. First letter should include experience, education, salary desired and photograph. **0518**

Chemical or **Gas Engineers,** with gas plant operating experience or pilot plant experience, are wanted for development work on the pilot plant scale production of synthesis gas from coal by a new process. Opportunity to get on the ground floor in a new line of manufacture promising considerable future. Location in East. Salaries ranging from about $2,650 to $4,900 per year depending upon training and experience. Five weeks' paid vacation per year. Submit personal data and references. **0519**

Graduate Engineer, capable of supervising Street Construction and Maintenance. State salary required and experience. **0520**

Assistant to **Rate Engineer** of large East Central natural gas system. Economic studies, rate negotiations, development of statistical methods, estimates of future operations. 25-35 years, willing to accept responsibility, tactful, analytical Engineering or Business Administration College graduate or equivalent. **0521**

Gas Engineer—Preferable A. G. A. Laboratories background, for work with home appliance manufacturer in middle West. Design, testing and consulting work on gas appliances. Excellent opportunity. **0522**

Young man—**Graduate Engineer.** Experience in Natural Gas Utility Operation, Distribution Design and Planning. For Colorado Utility, 12,000 Meters. **0523.**

Appliance Instructor—Experienced in conducting school and instructing servicemen in the operation and maintenance of all domestic and industrial Gas Appliances. Salary commensurate with experience and ability. Please furnish references and full particulars regarding education, qualifications and other personal data necessary for proper appraisal. **0524.**

Man for **sales** on special gas pressure control equipment; primarily a salesman with sufficient background in heavy distribution work who could be trained to handle the engineering work in the field. Considerable road work now with the idea of later becoming sales manager. **0525.**

Superintendent of high pressure natural gas transmission system in Northern California. Requires experience with ability to direct field forces in operation and maintenance of high pressure pipe lines including meters, regulators and controls; also office personnel performing dispatching, accounting, meter calculations, etc. Prefer applicant 30-40 years with some college education or equivalent. Write, stating personal history, previous experience, and salary expected. **0526.**

Pacific Northwest Gas Utility has an opening for a **mechanical** or **chemical engineer** for a position as maintenance engineer in oil-gas and water-gas plant. Position will require work in plant under production superintendent. Mechanical and structural drafting and design experience necessary. Will be required to prepare equipment maintenance schedules and supervise their execution. Prefer man with at least five years gas plant maintenance engineering experience. Apply, giving full particulars as to age, education, experience and salary expected, in first letter. **0527.**

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